

AMERICAN NURSERYMAN

The Nurseryman's Forte: To Make America More Beautiful and Fruitful

DECEMBER 1, 1950



Juniperus Horizontalis Plumosa

SEEDS TREE—SHRUB—PERENNIAL **HERBST BROTHERS**
FLOWER—VEGETABLE—GRASS 92 Warren St., New York 7, N. Y.

Correspondence with seed collectors and growers invited.

Free catalog "Seeds for Nurserymen."

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Following is a partial listing of the more popular varieties now in heavy demand. As the fall season is now closing, we would suggest early reservation on your anticipated requirements for Spring, 1951, delivery.

For descriptions and more complete listing, refer to our September 4th Wholesale Trade List.

WRITE FOR SPECIAL PRICES ON QUANTITY LOTS.

	Per 100		Per 100		Per 100		Per 100
<i>Acanthopanax sieboldianus</i>		<i>Cotoneaster acutifolia</i>		<i>Kolkwitzia amabilis</i>		<i>Spiraea Anthony Waterer</i>	
3 to 4 ft.	\$ 45.00	3 to 4 ft.	\$55.00	3 to 4 ft.	\$ 70.00	2 to 2½ ft.	\$40.00
2 to 3 ft.	35.00	2 to 3 ft.	40.00	2 to 3 ft.	50.00	18 to 24 ins.	35.00
18 to 24 ins.	25.00			18 to 24 ins.	40.00	15 to 18 ins.	30.00
<i>Almond, Pink-flowering</i>		<i>Cydonia japonica</i>	40.00	<i>Lilac, Charles X</i>	30.00	<i>Spiraea arguta</i>	
3 to 4 ft.	50.00	3 to 4 ft.	35.00	2 to 3 ft.	70.00	2 to 3 ft.	40.00
2 to 3 ft.	45.00	18 to 24 ins.	25.00	18 to 24 ins.	50.00	18 to 24 ins.	30.00
18 to 24 ins.	35.00	<i>Deutzia Pride of Rochester</i>		<i>Lilac, Common Purple</i>		<i>Spiraea billardi</i>	
12 to 18 ins.	25.00	3 to 4 ft.	55.00	2 to 3 ft.	50.00	2 to 3 ft.	40.00
<i>Berberis atropurpurea</i>		2 to 3 ft.	40.00	2 to 3 ft.	32.00	18 to 24 ins.	22.00
2 to 2½ ft.	45.00	3 to 4 ft.	30.00	<i>Lilac, President Grevy</i>		<i>Spiraea froebeli</i>	
18 to 24 ins.	32.00	<i>Exochorda grandiflora</i>		3 to 4 ft.	85.00	2½ to 3 ft.	35.00
15 to 18 ins.	25.00	3 to 4 ft.	50.00	2 to 3 ft.	70.00	2 to 2½ ft.	27.00
12 to 15 ins.	20.00	2 to 3 ft.	40.00	18 to 24 ins.	50.00	18 to 24 ins.	22.00
<i>Berberis thunbergii</i>		18 to 24 ins.	28.00	<i>Lilac, rothomagensis</i>		12 to 18 ins.	16.00
2 to 2½ ft.	27.00	<i>Forsythia fortunei, intermedia,</i>		3 to 4 ft.	60.00	<i>Spiraea thunbergii</i>	
18 to 24 ins.	22.00	<i>intermedia spectabilis</i>		2 to 3 ft.	45.00	2 to 3 ft.	30.00
15 to 18 ins.	18.00	3 to 4 ft.	45.00	18 to 24 ins.	35.00	18 to 24 ins.	25.00
12 to 15 ins.	14.00	2 to 3 ft.	30.00	<i>Philadelphus Amalthee</i>		<i>Spiraea vanhouttei</i>	
<i>Berberis, Tru hedge Columberry</i>		18 to 24 ins.	22.00	3 to 4 ft.	60.00	4 to 5 ft.	35.00
2 to 2½ ft.	45.00	<i>Honeysuckle, grandiflora rosea</i>		2 to 3 ft.	50.00	3 to 4 ft.	28.00
18 to 24 ins.	37.00	4 to 5 ft.	45.00	18 to 24 ins.	40.00	2 to 3 ft.	22.00
15 to 18 ins.	30.00	3 to 4 ft.	40.00	<i>Philadelphus coronarius</i>		18 to 24 ins.	16.00
12 to 15 ins.	23.00	2 to 3 ft.	30.00	4 to 5 ft.	50.00	<i>Symphoricarpos albus</i>	
<i>Buckthorn, Cathartica</i>		18 to 24 ins.	22.00	3 to 4 ft.	40.00	3 to 4 ft.	30.00
3 to 4 ft.	30.00	<i>Honeysuckle, morrowi</i>		2 to 3 ft.	30.00	2 to 3 ft.	22.00
2 to 3 ft.	22.00	4 to 5 ft.	50.00	18 to 24 ins.	22.00	18 to 24 ins.	16.00
18 to 24 ins.	16.00	3 to 4 ft.	45.00	<i>Honeysuckle, tatarica rosea, rubra</i>		<i>Symphoricarpos chenaultii</i>	
12 to 18 ins.	10.00	3 to 4 ft.	45.00	3 to 4 ft.	45.00	3 to 4 ft.	40.00
<i>Buckthorn, Frangula</i>		2 to 3 ft.	40.00	18 to 24 ins.	35.00	2 to 3 ft.	27.00
3 to 4 ft.	35.00	18 to 24 ins.	30.00	<i>Physocarpus opulifolius</i>		18 to 24 ins.	22.00
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No. 1	28.00	18 to 24 ins.	35.00	2 to 2½ ft.	40.00	<i>Tamarix hispida</i>	
Med.	20.00	12 to 18 ins.	25.00	18 to 24 ins.	30.00	3 to 4 ft.	40.00
<i>Cornus alba sibirica</i>		<i>Hydrangea paniculata grandiflora</i>		12 to 18 ins.	20.00	2 to 3 ft.	30.00
4 to 5 ft.	55.00	3 to 4 ft.	60.00	<i>Privet, ibota vicari</i>		18 to 24 ins.	22.00
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2 to 3 ft.	35.00	18 to 24 ins.	35.00	18 to 24 ins.	40.00	2 to 3 ft.	50.00
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3 to 4 ft.	50.00	18 to 24 ins.	30.00	<i>Privet, vulgare</i>		3 to 4 ft.	60.00
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18 to 24 ins.	55.00	12 to 18 ins.	35.00	<i>Salix purpurea</i>		<i>Weigela rosea</i>	
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3 to 4 ft.	55.00	2 to 3 ft.	60.00	18 to 24 ins.	25.00	2 to 3 ft.	35.00
2 to 3 ft.	40.00	18 to 24 ins.	50.00	15 to 18 ins.	18.00	18 to 24 ins.	25.00
18 to 24 ins.	30.00	12 to 18 ins.	35.00	12 to 15 ins.	14.00		



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The Nurseryman's Forte: To Make America More Beautiful and Fruitful

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Forms for the December 15 issue will close Monday, December 4.

Mail copy to arrive at Chicago by that date—no later!

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AMERICAN NURSERYMAN

F. R. KILNER, *Editor and Publisher*

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Editorial

ELECTION RESULTS.

Whatever his party politics, the businessman finds some assurance in the results of the election last month. Already there are contemplated revisions in the controls placed on some materials, mortgage credit and certain types of construction, in order that civilian demands will not compete with military requirements. Decreased activity in several lines affected by the orders indicates that they may have gone too far. The new Congress will give these matters more careful consideration.

The public reaction against dishonesty, whether political or financial, reacted severely upon suspected politicians. Laboring men showed themselves capable of expression in their own right, instead of following the dictates of those leaders who sought to speak for them. Perhaps most important of all was the realization of the fact that the American people themselves want a voice in where they are going, and they are able to reverse the trend if it does not agree with their wishes.

CENSUS FIGURES.

Final 1950 census figures reported last month show that the United States has a population of 150,697,361. This is a gain of 19,028,086, or fourteen and one-half per cent over the 131,669,275 counted in the preceding census of 1940 and represented the largest population increase for any decade in the nation's history.

Not much more than a decade ago, government economists and other experts at figures asserted that this country had reached maturity and that it would cease to grow in population, productivity and wealth. Maybe the war years are in part responsible for the increase in population, just as they provided stimulus to production in factories and fields. But expansion has continued since the war in many fields of production, and we read much about further expansion by other processes than financial inflation.

The picture of this country, unable to grow and with no further room for enterprise, was painted by those who thought the time was at hand for socialism, economic and

political. The prediction of a nation, after growing rapidly for 200 years or more, coming to a dead center emanated from a discouraged outlook.

The postwar years have seen industrial and mercantile activity unparalleled in previous decades. The optimists again have prevailed over the pessimists. The fallibility of predictions is again demonstrated.

PRODUCTION, INFLATION.

The plans of the administration at Washington for greatly increased military expenditures, adding rearmament materials to the present high production of civilian goods, seem likely to lead to record industrial production in 1951, accompanied by at least moderate inflation of prices. Reports from the annual agricultural outlook conference sponsored by the United States Department of Agriculture recently bear out that surmise.

When record industrial production of civilian goods alone prevails, the tendency is toward a deflationary economy. When the market is well supplied, prices tend to decline. That readjustment has appeared in some fields during the five years of peacetime, including textiles, some home furnishings and, in the horticultural field, cut flowers. When supply exceeded demand, prices dropped, more at wholesale than at retail.

But in some fields the supply has not yet caught up with the demand created by the wartime vacuum, particularly in automobiles and homes. So that the civilian economy will not see these cut off again, by the straight-jacket policy of quotas, allocations and freezes as in the recent war, the administration is seeking to meet its rearmament needs—not nearly so large as a decade ago—by devoting only ten or twenty per cent of the nation's productive capacity to that purpose.

At present the federal government is instituting only limited controls, largely through curbing credit and increasing taxes. If these restrictions hold down civilian demands to the point where they can be met out of the reduced productive capacity for civilian goods, while rearmament is progressing, the outlook would seem to be for high employment, record production and some price inflation.

More general will be the picture

of wartime with higher incomes and lower civilian supplies producing a demand that causes prices to rise. If the effect is moderate, the politicians and economists will be pleased, as will businessmen. Should the situation begin to get out of hand, the drastic controls of another war era may return.

The nurseryman's problem in 1951 will probably be securing sufficient labor to grow, sell and plant the stock the public will buy, particularly so long as home building continues. Supplies and equipment will likely show the effects of curtailed civilian goods and strong demand, with price increases and some scarcities.

SAVE THEM FOR THE CIRCUS.

Overenthusiastic writers of catalog and advertising copy for nurserymen and seedsmen are not the only ones who are careless in their employment of adjectives. That is apparent to anyone who follows the citations of the Federal Trade Commission.

Responsible advertising men are not apprehensive of the government agency, but they realize that honesty and good taste require restraint and sound sense in the preparation of advertising copy.

Recently Fairfax M. Cone, of the advertising agency, Foot, Cone & Belding, and chairman of the board of directors of the American Association of Advertising Agencies, urged advertising clubs to "watch for advertising foolishness—and when they find it, laugh it out of being."

He mentioned seeing three advertisements of television sets on three successive pages of a newspaper. In each case, the same 12½-inch television screen was called "a big 12½," "a huge 12½" and "a giant 12½."

"Let's call a 12½ a 12½ and be done with it," urged Mr. Cone. "Let's call things 'big' or 'huge' or 'giant' only when they are big or huge or giant—in legitimate comparison. Let's call prices low only when they are low—competitively. And let's save 'amazing,' 'sensational' and 'stupendous' for the circus."

THERE'S something feminine about a tree. It does a strip tease in the fall, goes with bare limbs all winter, gets a new outfit every spring and lives off the saps all summer.—Walnut, Ia., Bureau.

The Mirror of the Trade

DDT Injury to Camellias

By D. L. Gill

Several cases of apparent injury to rooted camellia cuttings growing in soil treated with DDT have been observed by the writer, and others have been reported to him by growers. Experimental trials were conducted to determine if injury does occur to some camellia varieties growing in soil treated with DDT. This is a preliminary report upon the results obtained in these trials.

In the south, DDT applications are made to nursery soils, particularly to control white-fringed beetle or as a protection against infestation by this insect. The white-fringed beetle control project, bureau of entomology and plant quarantine, United States Department of Agriculture, uses fifty pounds of technical DDT per acre, or two ounces per cubic yard of potting soil in the control program for woody plants. Fleming (1) saw no injury to eleven varieties of camellias growing in soil treated with half this amount of DDT.

Tests and Results.

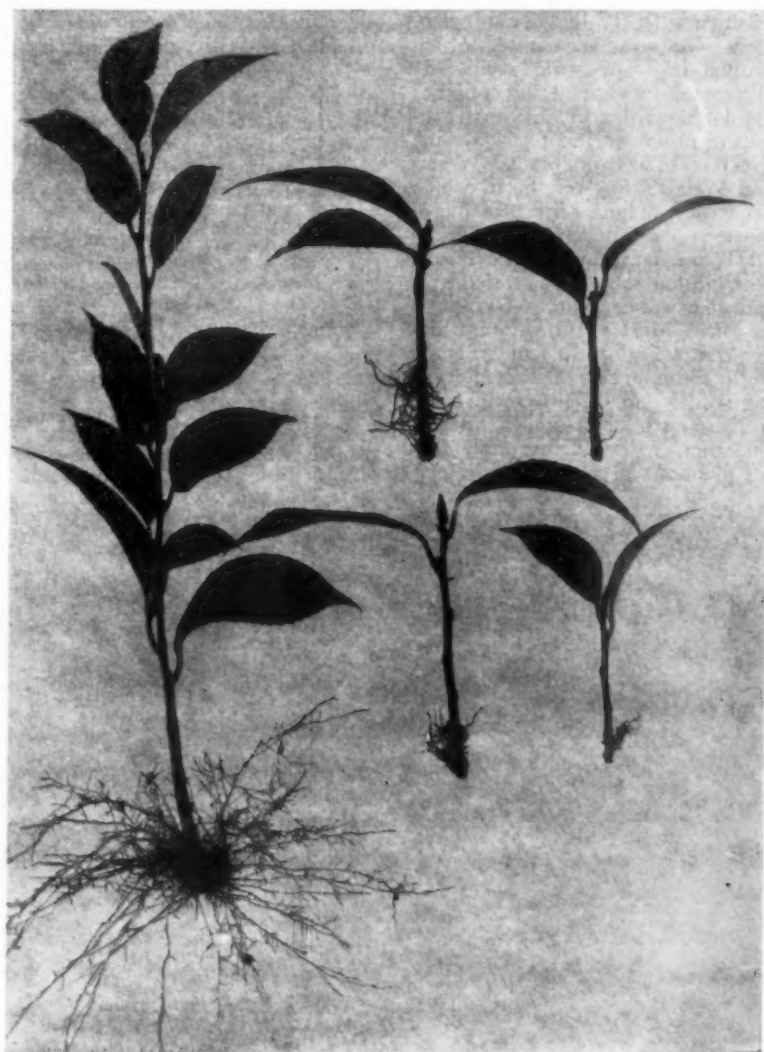
Soil consisting of thoroughly mixed sandy woods soil four parts and peat moss one part was divided into three lots. To one lot fifty per cent wettable DDT (Du Pont's Deenate) was mixed at the rate of four ounces per cubic yard. This is the quantity used by the white-fringed beetle control project. To the second lot twice this amount of DDT was added, and the third lot was untreated. The soil was put in No. 10 cans and placed in a half-shade lath house. Three rooted camellia cuttings were transplanted into each can between October 29, 1949, and February 6, 1950. At least five cans of a variety were used for each of the treatments. The DDT was mixed with the soil as needed rather than all at one time.

It was evident from the number of plants living after the tests and from the growth made that decided injury occurred to *Camellia japonica* varieties Cheerful, Mrs. K. Sawada, Imura, Victory Maid, K. Sawada and Catherine Cathcart, and Camel-

lia saluenensis variety Appleblossom. The injury occurred at both rates of DDT application. Injury was evidenced by a deterioration of the roots and a slight yellowing of the leaves, followed by death of the buds and leaf fall. Such injury might be confused with the root rot disease caused by *Phytophthora cinnamomi*. However, DDT tends to affect all plants of a given variety more or less alike, whereas the root rot disease is usually seen in various stages of development. Plants of variety Daikagura, an apparently sensitive plant not included in these tests, taken from a nursery, illustrate

the symptoms of the injury below.

It is evident that some varieties of camellias are severely injured by DDT applied to the soil at the rates used and under the conditions of these tests. Soil and other conditions may affect the severity of the injury. In these tests the DDT was thoroughly mixed with the soil in the containers and bare-rooted cuttings were placed in the soil. DDT, when applied to soil in nurseries, is worked into the upper three inches. In some cases it is applied and worked in around established plants. Fleming (1) grew a large variety of plants in soils treated with DDT,



Camellia japonica var. Daikagura from nursery, four plants on right from bed treated with DDT fifty pounds per acre, plant on left from untreated bed.

Dr. D. L. Gill is associate pathologist, division of fruit and vegetable crops and diseases, bureau of plant industry, soils and agricultural engineering, Agricultural Research Administration, United States Department of Agriculture, Spring Hill, Ala. The cooperation of the Alabama state department of agriculture, in whose laboratory at Spring Hill this work was conducted, is acknowledged.

including eleven varieties of *Camellia japonica*. None of the camellia varieties used by him were used in the writer's tests. Injury in his tests consisted of growth retardation in only a few vegetables and strawberries. The injurious effects of DDT in the writer's tests are caused by inhibition of root development. Since DDT does not appear to be leached downward to any appreciable extent, little or no injury is to be expected when sensitive plants are grown in treated soils if most of the root system is below the DDT. Rooted cuttings, as used in these tests and as placed in treated beds by nurserymen, have their entire root system in the treated soil.

From a number of observations there can be little doubt that Daikagura and Taylor's Variegated (Three-in-One) should be included with the other seven varieties found sensitive to DDT. Rooted cuttings of these nine varieties should not be planted in DDT-treated soil. The differences in varietal susceptibility are not surprising in view of the results of other investigators upon the effects of DDT on plants. Wester and Weigel's (7) results, in which one variety of bush Lima bean out of fourteen was found susceptible to DDT, are an example of this. It is to be expected that other varieties of camellias will be found to be injured by DDT. Most of the varieties that are commonly grown from cuttings in the south and are suspected of being sensitive to DDT were included in these tests. Therefore, it is doubtful whether the further tests that are planned will show as great a per-

centage of varieties that are sensitive.

There have also been reports from the Huntington Botanical Gardens, San Marino, Calif., of possible injury to camellias following DDT sprays upon the foliage (4,5). Others have not found camellias injured by foliage applications (2,3,6). Growers have pointed out to the writer some plants they thought had been injured by DDT and oils in a combination spray. In view of the large number of foliage treatments made by the white-fringed beetle control project without apparent injury, and the lack of experimental information showing injury, it cannot be stated that foliage applications harm camellias. However, it is interesting to note that all the varieties, except Imura, found sensitive to DDT in the soil have also been suggested by the California writers or by growers in the south as being injured by DDT sprays. Further experimental work is needed to test various DDT spray formulations upon camellia foliage.

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PENNSYLVANIA NURSERIES ENTER FLOAT IN PARADE.

Nurserymen in the community of Lancaster, Pa., entered wholeheartedly into the spirit of celebrating Pennsylvania week, October 16 to 21, when they provided an attractively decorated float for the 3-mile-long evening parade which dramatized Lancaster county as the garden spot of the world.

Illuminated with bright lights, the nurserymen's float carried a sign on each side giving the name of the Pennsylvania Nurserymen's Association and the "Plant America" slogan of the American Association of Nurserymen. From wooden benches placed among the potted nursery stock, three young girls distributed more than 3,000 rosebuds to the appreciative spectators along the 3-mile route.

Prestige and good will accredited to nurseries in the area after the parade were effected by the cooperative efforts of the following firms which backed the project: B. F. Barr & Son, Erb Bros., Herr's Nurseries, C. E. Pontz & Son, Inc.; Nolt's Ponds, and Root's Landscape Service.



Lancaster County Nurserymen's Float in Parade Honoring Pennsylvania Week.

Design of Portable Sprinkler Systems

By H. W. Kitching

The supply of available soil moisture is probably the greatest single factor in crop production. Even during years of average rainfall, application of supplemental water at just the right time and in the required amounts assures high yields and superior-quality produce. In dry years it may mean the difference between a good crop and no crop at all.

The higher the value of the crop being grown, the more important differences in yields become. For this reason during the past few years many vegetable and fruit growers have installed supplemental sprinkler irrigation systems. A number have reported that they have paid for their installations through increased yields during the first season's operation.

You may wonder why these systems have not been installed previously. The answer, I believe, lies in the comparatively recent development of lightweight quick-coupling aluminum pipe for mains and distribution lines. With this type of equipment a relatively small amount of pipe can be quickly and easily moved to cover a large acreage; thus the capital investment is reduced to the point where the watering of large acreages becomes a practical proposition.

In order, however, for the practice of irrigation to become permanent, it is essential that systems be installed on the basis of sound planning. Such planning must encompass both engineering and agricultural consideration.

It is beyond the scope of this paper to describe in detail the complete procedure which should be followed in properly designing a portable sprinkler irrigation system. I should like to emphasize, however, that the planning of such a system is definitely an engineering problem. Experience has proved that rule-of-thumb methods cannot be applied in that every installation differs, to some extent, and requires individual consideration if the system is to be completely successful. Briefly the steps that should be followed in planning any such installation are as follows:

1. Determine if a suitable source of water is or can be made available.

Paper presented by H. W. Kitching, associate professor, agricultural engineering department, Ontario Agricultural College, Guelph, at recent short course for nurserymen at the college.

Approximately eight inches of supplemental water is required per acre during the growing season. This means that, counting on some losses, approximately 200,000 gallons of water must be available for each acre under irrigation. If a dam or dugout is used, the general rule is that one acre-foot of water is required for each acre irrigated.

Deep wells may be used where surface water is not available. The wells should provide a continuous flow of approximately 100 gallons per minute and cannot be alkaline or contain too much iron or sulphur.

Pumping equipment is quite expensive for deep well installations, and so they are used only where no other source is available and higher-priced crops are being grown.

2. Determine the volume of water that should be applied at each irrigation. This depends on a combination of two things—the type of soil and the depth of rooting of the crops being grown. Heavier soils hold water better; therefore more can be economically applied at one time. It is no use soaking the soil below the level of potential root growth, however; therefore shallow-rooted crops require less water at each irrigation than do deep-rooted types. The following table shows the recommended amount of water that should be applied on various soil types for different depths of rooting.

SOIL MOISTURE TO REPLACE FOR
1, 2 AND 4-FOOT ROOT ZONES
(Acre-inches per Acre)

Soil texture and profile	1 ft.	2 ft.	4 ft.
Coarse, sandy soil uniform to 6 ft. . . . .	.75	1.0	1.75
Coarse, sandy soil over compact subsoil	1.0	1.5	2.0
Sandy loam uniform to 6 ft.	1.5	2.0	3.0
Sandy loam over compact subsoil	1.75	2.25	3.25
Silt loam uniform to 6 ft.	2.25	3.0	4.0
Silt loam over compact subsoil	2.25	3.25	4.25
Clay or heavy clay loam	2.0	2.5	3.25

3. Determine the minimum frequency of irrigation under drought conditions. This is found by dividing the amount of water applied per irrigation, as determined in step 1, by the daily water use of the crops being grown. The peak daily use of water will vary greatly according to temperature conditions.

4. Find the minimum number of

acres that must be irrigated each day to give complete coverage. This can be determined by dividing the total number of acres to be watered by the frequency of irrigation as found in step 2.

5. Determine the minimum time in hours in which the required amount of water per acre can be applied. This is found by dividing the amount of water per acre as found in step 1 by the maximum recommended rate of application in acre-inches per hour. This rate will vary according to the type of soil, the slope and to some extent the crop being grown.

By using high-capacity sprinklers, the time required at each setting can be reduced, allowing more moves per day and thus a greater acreage covered per day than would be the case if the water were applied more slowly with smaller sprinklers. It is advisable to apply water as fast as the soil and the crops being grown will take it. Less piping and fewer sprinklers are required and there is less loss from spraying evaporation. If, however, a man has a small acreage and has plenty of time to cover it, he can use small sprinklers. These will not throw so much water nor throw it so far. The distance the line is moved at each setting must be less, requiring more moves, and the time required to apply the right amount of water is greater. This will require considerably more labor. If the rate of application is low, however, a lower-capacity pump, using a small engine, can be employed along with smaller diameter piping.

As stated previously, each installation requires individual consideration; type of soil, topography, crop, acreage to be covered and general labor setup must be all taken into account in determining the type and size most suitable.

6. Choice of type and size of pipe. Practically all systems are laid out to use light-gauge aluminum pipe with quick-coupling connectors. These can be secured in 20, 30 and 40-foot lengths. Longer lengths are cheapest and also require less labor in moving.

There is a wide variety of quick couplers on the market. Each individual type may have some slight advantages over another, but on the whole, from a practical standpoint, there is really no great difference in them. The principle of sealing is the



Cold-storage Room, 40x60 feet, Equipped to Control Temperature and Humidity.

same in each—by water pressure behind a rubber seal—and all types can be quickly and easily coupled and uncoupled.

The size of pipe best suited for the installation will vary according to the number of sprinklers being used, their capacity, the lift required from the source to the area being irrigated and the total length of piping required. For best operation a minimum of 30 p.s.i. pressure is required at the sprinklers—the larger ones require much higher pressures. In order that the pumping equipment will not be operating under too high pressures to maintain this pressure at the sprinklers, size of pipe should be chosen to combined loss of pressure due to friction in the pipe and the

lift should not exceed approximately 25 p.s.i.

7. Selection of pumping equipment. For surface water supplies, lakes, streams and ponds, high-speed centrifugal volume pumps are always used. These pumps have a suction lift of approximately twenty feet and will work under pressures of approximately 100 p.s.i. The higher the pressure they are required to work under, however, and the greater the suction lift, the lower will be their capacity. They should, therefore, be installed as close to the source of water as possible. Pipe sizes should be such that excessive pump pressures will not be necessary.

When the source of supply is a deep well, multistage vertical tur-

bine pumps are required to deliver sufficient volume. As has been mentioned previously, these are quite expensive. With relatively small installations a large-capacity deep well reciprocating type may be used.

8. Selection of power. Most makes of pumps are designed to operate at approximately 2,000 r.p.m. They, therefore, require a relatively high-speed motor if they are to be direct driven. The motor is under a constant load and, if it is to stand up satisfactorily, must not be running at full load. The general rule followed in selecting the size of engine is that its rated horsepower at pump speed should be 150 per cent of the calculated horsepower required to drive the pump.

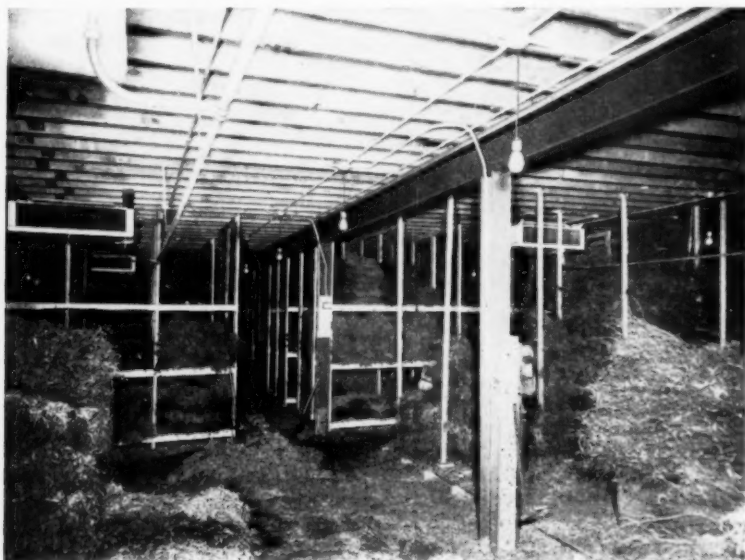
EVERGREEN COLD STORAGE.

The problem of how to keep evergreen seedlings after they are dug from the seedling beds and while they are sorted and graded until they are shipped has been solved by Plumfield Nurseries, Fremont, Neb., with the construction of an insulated, refrigerated storage in which bare-root evergreens and other stock may be economically protected.

Before constructing the large permanent cold-storage building, the firm had constructed a small cold-storage room and experimented with its effectiveness for preserving evergreen stock. Although this room was designed for storing young evergreens on a temporary basis only, it proved practical for keeping stock dug in the fall until the following spring. In spite of the fact that the small room was enlarged five different times, it became apparent that a new building was needed to give adequate cool space.

So a new building was constructed to hold evergreen seedlings dormant from fall until spring. Now completed, it contains a cooler, forty feet wide and sixty feet long, with a clear height of nine feet. The cooler area is insulated with a 4-inch thickness of Armstrong's corkboard. The interior walls are finished with asphalt emulsion. Roof insulation was applied not only over the cooler, but also over the grading and sorting room, which is adjacent to the cooler and which may be easily converted to additional cold-storage space when needed.

With this new building Plumfield Nurseries are able to maintain temperatures of 33 to 35 degrees Fahrenheit and relative humidities of eighty-five to ninety per cent, which have been found to be the most satisfactory for storage of young evergreen seedlings in their locality.



Plumfield Nurseries Cooler Filled with Evergreen Seedlings for Storage over Winter.

Native Missouri Shrubs"and Trees

By August P. Beilmann, Missouri Botanical Garden

Native plants have particularly appropriate interest at this time. Our elms are seriously threatened in some sections, and oak wilt has been found to be more widespread. These diseases serve to highlight the need for diversified plantings. We need to use many species, and in order to do this we have to use more imagination in the selection of plant material than ever before. There are a number of trees and shrubs which have not been generally used; the fact that they are uncommon or even rare in our landscape is a decided advantage. Their use will add interest to a planting, and they are quite free of the troubles affecting the oaks and elms.

If you want a tree for the street or for general use, the bald cypress, or taxodium, has outlived all its enemies. It will grow in a wet situation, and it will be equally happy in a drier site. Its recently discovered relative, the metasequoia, will bear watching, for it appears to be quite hardy and will be an extremely important addition to horticulture in the middle west.

Another tree to be given consideration is the persimmon, or diospyros. Usually we think of persimmons as little more than brush. As a matter of fact, it makes a very satisfactory shade tree. Its form and shape are good, and it has only a limited number of enemies.

Don't overlook the serviceberry, or amelanchier. While this can hardly be thought of as a shade tree, it is none the less of considerable importance because of its early-flowering habit, normally clean foliage and good landscape characteristics.

Another tree that I suggest be given consideration when you have just the right location for it is the native papaw, or asimina. Papaws are not common today, but they do grow large enough to be used as a background, and they are interesting at all seasons, beginning with the dark, rich flowers in spring and the rather good foliage and the immense fruits produced in fall.

Another shade tree has proved hardy over almost all of Missouri, rather difficult to transplant, but magnificently colored in fall and with no serious pests. It could be used on the streets and in the larger gardens. It certainly has room in

every city park. This is the black gum, or nyssa. This is a forest tree, however, and must be given adequate room.

I might add a word for the birches, betula. They become active in early spring. The catkins begin to develop before the leaves, and our native birches are almost trouble-free. I don't mean, bring in the white birch. Unfortunately, that has been done too frequently. I mean our native red birch, growing along rivers and creeks. It is often possible to find a

damp place where red birches will be quite happy. Here is one tree that can be treated as a shrub if cut back to the ground regularly; it becomes treelike if allowed to grow in a good location.

Among the hickories there are relatively few that are perfectly at home as shade trees, with the possible exception of the bitternut hickory, *Carya cordiformis*. This hickory, with many good habits, does not produce a large fruit. The hickory, of course, has a certain number of



Kentucky Coffee Tree near Maturity, Fifty-five Feet High, with 18-inch Trunk.

enemies, mostly insects, but an arsenical spraying program will keep it in good shape. It is a tree that should be seriously considered for use along the streets. And it certainly has a place as a shade tree in the larger gardens and parks.

Sassafras is everywhere looked upon as little more than a brushy growth in abandoned fields. Actually it becomes a forest tree with pleasing foliage when used in the background and is extremely satisfactory as a shade tree when grown as a specimen.

Another tree of our river courses which is very adaptable is the Kentucky coffee tree, *gymnocladus*. This plant grows rather rapidly and has the biggest leaf of any native tree, producing a seed pod half the size of a banana, and should be given a thorough trial on the streets and in the garden. It has few bad habits and many outstanding characteristics.

In the same category we might speak of the thornless forms of locust. The only objection would be the production of immense seed pods, but the single-fruited species, *Gleditsia aquatica*, from the bootheel swamps, should be tried on any location a little wetter than the surrounding territory. This last tree is without thorns and without the objectionable seed pods.

Among the shrubs, we have a number which have been almost completely lost in the nursery trade. There is the toothache tree, *zanthoxylum*, suitable perhaps only in the border planting. Then there is the spicebush, *benzoin*, which produces small, yellow flowers early in spring. It is a shrub of clean habit, reaching a height of eight feet with a considerable spread. It would be an asset to a border planting.

There are two viburnums that have almost passed out of the picture. Both are called black haws. If given an opportunity to develop, they, too, would be an asset. The brilliant foliage, the excellent flowers and the heavy crop of interesting fruits, which were once used in the kitchen, make this a really worthwhile plant for a garden, either as a specimen or in the border.

Then there are some hollies that have been forgotten. The native deciduous holly, *Ilex decidua*, is a good background plant if given an opportunity. It produces tremendous quantities of fruit. This plant may approach a small tree in size and trunk diameters; so it should be given plenty of room. Too little attention has been given to its most spectacular relative here in the middle

west. This is the American holly, which grew in southern Missouri at one time. There are a number of excellent selections on the market; all of these grow well here in Missouri, and all are worth every bit of extra effort necessary to succeed with them. They are interesting in early spring with the opening of the new flowers; the foliage is always good, and the named varieties producing a heavy crop of fruit are really spectacular. The holly can be grown almost anywhere. However, it is appreciative of heavy mulch and requires a fertile soil.

Growing with the deciduous holly along the bigger rivers we can, on occasion, find swamp privet, *forestiera*. This is a vigorous shrub, attaining a height of fifteen feet and well suited as a screen or for use in the border planting. It is a fairly rare plant and will be lost forever if river improvements continue.

We cannot overlook the hardy lemon, *poncirus*. It has been found near the Missouri border and should be given a thorough trial in many sections of the state. The plant is heavily armed, but the flowers, the clean foliage and the interesting typical lemon fruits would add a great deal to any landscape planting.

INDIANA'S oldest nurseryman, George N. Moyer, Laketon Nurseries, Laketon, will celebrate his ninetieth birthday this month, aided as usual by the North Central Indiana Nurserymen's Association.

RECENTLY associated with the firm of J. C. Bunch & Son, Terre Haute, Ind., as a landscape architect is F. Ross Vogelgesang, formerly assistant landscape architect for the Indiana department of conservation and a graduate of the University of Illinois.



Poncirus Trifoliata, the Hardy Lemon, 18 Years Old and Eighteen Feet High.

Cleaning and Processing Seeds

By B. C. Smith

It is a yearly problem to gather the fruit of our trees and shrubs and to extract and clean the seeds for the next year's seedling production. The problem discussed here is of methods useful to the average nurseryman, who usually handles only a limited quantity of seeds.

It is, of course, important to identify properly the species of plants in which we are interested and know enough about the characteristics of the species to determine whether we can obtain reasonably true seedlings from their seeds. It is desirable to collect seeds which are not obviously diseased or heavily infested with insects.

There is also the question of maturity. Some nurserymen prefer to gather the seeds before they are fully mature. It is a good idea, however, to know the maturity date of the species to be collected. Suggested collection dates published by the various arboretums, universities and other research institutions should be a good index.

Once the maturity date has been ascertained, either from references or observations of the seed development, it is important to know how much time you have to gather the seeds before the birds, mice, squirrels or other ecological factors ruin the harvest.

Assuming then, that all has gone well with the harvest, the next concern is to obtain as many good seeds as possible and eliminate all foreign matter.

Extraction of Seeds.

Seeds of the following species usually are extracted by threshing or screening or both: *Alnus*, alder; *betula*, beech; *catalpa*, *Gymnocladus dioica*, Kentucky coffee tree; *corylus*, filbert; *carya*, hickory; *Gleditsia triacanthos*, honey locust; *Syringa vulgaris*, common lilac; *Cargana arborescens*, Siberian pea shrub; *Cercis canadensis*, redbud; *rhododendron*; *oxydendrum*, sourwood; *rhus*, sumac; *juglans*, walnut; *Hamamelis virginiana*, witch hazel; *euonymus*; *Ostrya virginiana*, eastern hop hornbeam; *platanus*, sycamore; *populus*, poplar; *tilia*, basswood or linden, and *quercus*, oak.

To extract seeds of cone-bearing species, one must thoroughly dry the cones. This can be accomplished by air drying in improvised rooms, specially built rooms, kilns or centri-

fuges. Cones can be dried quite effectively if spread in a single layer on wire mesh trays in a well ventilated room. The cones should be turned occasionally in order to obtain more even drying. Unless the room can be closed properly, there may be considerable loss from birds or rodents.

On a larger scale, however, the cones may be dried in kilns over a period of a few hours to two days, as compared with one to three weeks of air drying. Simple convectional kilns and forced-air kilns are in use for this purpose.

Seeds can be extracted from the cones by raking, or by tumbling in revolving drums or boxes with screened sides. The mechanical tumblers are used for the larger operations with a greater degree of efficiency.

Pretreatment of some cones by submerging them in water at a temperature of 130 degrees Fahrenheit for five to twenty minutes is beneficial. Red pine cones are often processed by soaking in water. The cones must be spread to dry in the open air to remove the water quickly. This treatment is especially good for very tight cones. A submergence in water for a longer period than twenty minutes is not desirable because of the excessive water which may be absorbed. Cones given this type of treatment give higher yields than untreated ones. It is desirable to have the cones as dry as possible before putting them into the kiln (4).

It is still a custom in some areas to spray the cones with water after they are discharged from the kiln. This causes the cones to close. Then they are run through the kiln again. Others claim to have received an increased yield by soaking the cones in water and then redrying. Increased yields of seeds were obtained by using this process. The increased number of seeds by this method was particularly important in seasons when the cones were scarce (1).

Specially constructed machines have been used to shred the cones of European larch.

Toumey and Korstian report that a machine similar to a grain-threshing machine was used for ponderosa pine. The cone scales are loosened or torn off in the machine and the seeds are liberated (4).

Pods from such plants as *cladrastis*, yellowwood; *robinia*, black locust, and *gleditsia*, honey locust, and capsules from *salix*, willow, and *populus*, poplar, can be broken up by beating with a flail.

Pods and Capsules.

Macerators of the hammer mill type have been used quite successfully for these types of seeds also. When water is used on pods such as honey locust, a watertight incasement is needed for a greater degree of efficiency. From 400 to 600 pounds of clean honey locust seeds have been processed in one day by this method.

A hammer mill type of grinder, often used for grinding feed materials, can be used to good advantage on dry pods. The ground tissues are then passed over a series of screens of different sizes to complete the extraction. There is a record of 500 pounds of fruit being ground in one hour. Ordinarily between 400 and 800 revolutions per minute are desired to prevent injury to the seeds. Faster or slower speeds seemed to be undesirable (2).

The hammer mill has also been used on the berrylike cones of juniper with good results (3). By running the mill slowly, between the 400 and 800 r.p.m.; mentioned before, the cones can be thoroughly broken up. By running the seeds through the proper meshed screen, most of the pulp is removed. Often a fanning mill is used after the seeds have been dried, to remove much of the remaining foreign matter. In order to remove the sticky mass which often is left clinging to the seeds, a lye solution can be used. Observe the seeds carefully and remove from the lye as soon as the sticky mass is separated. Wash the seeds thoroughly before stratifying. If the seeds are to be stored, be sure they are thoroughly dry to prevent deterioration.

A hammer mill can be put to further use as a scarifier by replacing the hammers with carborundum wheels. A speed of around 200 r.p.m. is recommended for good seed scarification.

Fleshy Fruit.

For small-scale operators, seeds from fleshy fruit can be cleaned by hand or treading in tubs, and rubbing through screens using hand brushes or a hose. For larger operations, concrete mixers, wine presses,

feed grinders, cider mills, potato peelers, hammer mills and macerators have been used. The hammer mills and macerators seem to be the most popular of those listed.

The hammer mill consists of a hooded inlet and a central chamber containing a series of hammers which rotate on a central shaft. Interchangeable outlet screens of different sizes are used. The mesh must be large enough to allow the seeds to pass through during the processing.

Macerators are constructed with a watertight V-shaped feeder. The fleshy fruit is fed through the top with running water and rotating concave blades. The pulverized tissue is diverted to a tank, where it

hornbeam; fraxinus, ash; tsuga, hemlock; acer, maple; pinus, pine, and picea, spruce, and other winged species can be dewinged most efficiently by rubbing them between moistened hands. Often the seeds are tied loosely in sacks and beaten or flailed. This method causes more injury, however. Screening (wet or dry) followed by fanning is practiced to finish the cleaning operation.

Dewinging machines have been constructed for large-scale operations. These machines must be operated at the recommended speeds to prevent excessive losses because of breakage and excessive heat.

The seeds of *Picea abies*, Norway spruce, and *Picea glauca*, white spruce, can be dewinged much bet-

that this method is limited to seeds having pulpy or fleshy fruit. Other types may be handled in this way, but a preliminary check must be made to ascertain the density of the seeds. If the seeds are of a lesser density than water, they will float, and the flotation process with water naturally will be of no value.

The use of hot water has been suggested as a method for cleaning juniper seeds. The fruits, which are multiseeded fleshy cones, are placed in a container of water. This is placed on a heater and brought to a boil. The container should be removed just as the boiling begins, and the water is allowed to cool somewhat. The heating and cooling should be repeated two or three times. The pulp can then be removed by rubbing over a screen of a small enough mesh to allow the seeds to go through.

Ethyl alcohol (ninety-five per cent) can be used to loosen the cones of junipers, also. The cones can be soaked until the structure is weakened sufficiently to force the seeds through a screen, as mentioned above.

[Continued on page 33.]



Light's Garden Store Built on Abandoned Schoolhouse.

further is processed by flotation to eliminate the pulp and empty seeds.

Prunus, chokecherry, for instance, requires crushing and soaking in water before running through the macerator. While soaking, the pulp tends to ferment. Although this has been recommended for some seeds, it is believed that fermentation should be avoided, especially if acetic acid is formed. This is particularly true of seeds which are to be stored. Seeds can be badly damaged by these practices. If the seeds are soaked for a short time and observed closely, the soaking can be terminated at the first signs of fermentation. As mentioned before, whenever seeds are processed from fleshy fruit or with water, it is important to use the flotation process afterward to separate the good seeds from the pulp and empty seeds.

Methods of Cleaning.

Small lots of winged seeds such as larch, larch; *Pseudotsuga douglasii*, Douglas fir; *carpinus*, American

ter, it is found, if they are wet. Wetting the seeds is not generally recommended except in special cases such as this.

Arborvitae seeds do not have to be dewinged after removal from the cones.

There are many nurserymen today, however, who prefer to leave the wings intact on evergreen seeds.

Flotation.

After the cups of acorns are removed by screening, flotation is used to remove those infested with weevils. The flotation method is more commonly used with seeds having fleshy, semifleshy or pulpy fruit. The pulp must be thoroughly separated from the seeds before water is applied for the final cleaning; otherwise the floating pulp will carry off many good seeds. Once the pulp has been broken, the contents of the container should be thoroughly agitated to float off pulp and other foreign matter.

This does not necessarily mean

GARDENERS ADVERTISE AT NEW BEDFORD, MASS.

To protect the public against peddlers and unscrupulous operators, small advertisements are carried from time to time in the newspapers at New Bedford, Mass., totaling about 100 inches annually and not altogether seasonal, by a local group, the Professional Gardeners' Association. Copy of a recent advertisement reads as follows:

HOME BEAUTIFICATION

In beautifying your home, whether it be the lawn, landscape work or any of the services offered, we suggest that instead of taking a chance on inferior work and being overcharged, you call a member of the Professional Gardeners' Association.

The Professional Gardeners' Association has grouped together in order that you may receive the highest quality workmanship at right prices. When you call a professional gardener, you will receive complete satisfaction, as all members are hometown people, interested in the welfare of you and the community. It costs no more to be sure.

The organization was formed in July, 1948, with the assistance of Dr. C. J. Gilgut, of the Waltham field station, and Marinus van der Pol, Fairhaven, Mass., who supplies many of the members with their plant materials. The latter was the first president, and Carl O. Johnson was vice-president, and Harvey H. Gobell was secretary-treasurer.

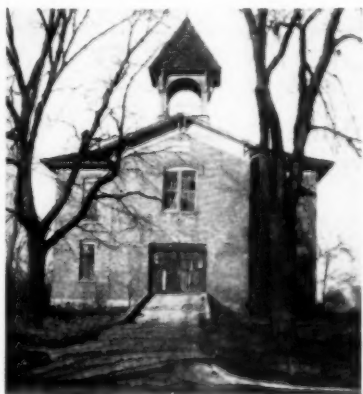
Mr. Gobell continues as treasurer and handles all headquarters business. Other current officers are: President, Edward Magardo; vice-president, Edmund Munson, and secretary, Alfred Best.

An earlier organization of the gardeners was formed about twenty years ago, with the hope that regulation of prices and establishing uniformity in quality of work would cure the ills they faced. But the group disbanded when the expected results were not attained. After the close of the war, the gardeners in the New Bedford area again sought to combat the injury done to the profession by unqualified competitors who misrepresented their ability and work to the public.

When the present group was established two years ago, small dues were set, but assessments were voted annually for specific purposes, including advertising and speakers at the monthly meetings. Not only have the qualified gardeners become acquainted with one another, but they are able, through advertising such as the above, to protect the public from being misguided by unscrupulous operators. This local group, through its association and monthly meetings, is not only helpful to the individual members, but beneficial to the profession as a whole, while raising the standard of home planting done in the area.

OLD SCHOOLHOUSE BECOMES GARDEN STORE.

The new garden store opened by Light's Tree Co., at Richland, Mich., is an excellent example of how an old, abandoned building and property can be transformed, without drastic alteration to the original structure, into an attractive and useful place of business. One of the accompanying illustrations readily



Old schoolhouse before it was remodelled into garden store.



Customers Inside Can See Through Large Picture Windows to More Displays on Lawn.

shows the old, brick schoolhouse, built in 1884, and the unimproved grounds surrounding it, as they appeared before John B. Light purchased them. And another shows how the building and property appear since they have been remodeled for use as a retail garden shop and nursery salesyard.

Most of the garden store was added to the original brick structure early this spring. It is primarily a one-story, L-shaped, wooden addition fitted around a corner recess of the old brick schoolhouse. The overhang of the roof and the large, picture-type windows give a modern touch to the architecture, but at the same time they do not clash with the part built in 1884. The dimensions of the store are 30x32 feet, with an office space of 14x16 feet in the back corner, part of which can be seen at the lower right-hand corner of the interior view of the store. Outside the walls are of dark-finished, knotted lumber, while inside they are a lighter, natural finish. Ample illumination is provided both from the outside through the large windows and skylights and from fluorescent lighting fixtures in the ceiling. As can be seen from the interior view, also, customers may purchase all kinds of garden accessories in the store, ranging from lawn and porch furniture and large-size garden tools and equipment, arranged on the floor area, to pottery and other garden ornaments, house plants and even children's toys, displayed on shelves and tables that line the walls. Outside on the lawn are more garden accessories, such as birdbaths, urns and picnic tables.

The grounds have been attractively landscaped, as behooves a horticultural establishment. To the left of the incline driveway, which enters the old brick building, can be seen the plantings, primarily of evergreens, that have beautified the once almost barren property. At the right-hand side of this incline and at one corner of the garden store can be seen a picturesque little planting enclosed by stonework, the old bell hanging from the tree, the same bell that once hung in the tower of the old brick schoolhouse, and the rustic lawn furniture, all in keeping with the old structure but greatly enhancing it and the new addition. A good part of the property to the front and side of the garden store has been cleared and surfaced with gravel to provide a clear, roomy entrance to the store and to the beds and bins to the rear of the building, from which nursery stock of all types is sold. Being primarily a landscaping organization, employing a landscape architect and planting crews, Light's Tree Co. had done little in the way of pushing sales of nursery stock until the past couple of years.

Richland is located nine miles from Kalamazoo and sixteen miles from Battle Creek, and most of the firm's sales are made to customers in and around these two cities. Summer sales are stimulated by purchases by residents from Gull lake, a large and beautiful lake surrounded by lovely homes. Response to the new garden store has been gratifying, says Dwight Hitchcock, of Light's Tree Co., and as a result of opening it the firm looks forward to increased business for years to come.

Plant Notes Here and There

By C. W. Wood

An Ohio reader writes as follows: "Some time ago you spoke casually of the small candytufts as being among the best of spring-blooming plants for the rock garden. Would you care to go into the matter further in the American Nurseryman?"

No doubt I did say they were "among the best," but the phrase is often used, by me at least, without careful distinction of its ramifications. There was a time in the brashness of my youth when I should have accepted the challenge of naming the ten greatest men in recorded history or the dozen best garden plants. With more sense or less temerity, or both, I would not now care to attempt to do either. But I think I am safe in saying that small candytufts are to be numbered among the most generally useful of garden plants.

I have two new ones under observation now and shall report on them later. The two best here in northern Michigan so far are Little Gem and Snowflake. It would be impossible to trace their ancestry, and that part of the story is not needed for a full enjoyment of the plants. One feature of both plants which gives them such a forward place in a list of the most desirable garden material is their adaptability to a wide range of growing conditions; in fact, they will do well almost anywhere in the sun and in almost any garden soil that is not actually waterlogged. Under these widely varying conditions they are sure to produce sheets of snowy flowers over a long period, from early May through most of June in this section, every year. They do not actually compete with each other for garden space, because Snowflake's height of eight inches is almost twice the height of the other. The outstanding feature in Snowflake is its large size of flower, quite three times as large as ordinary *Iberis sempervirens*, and its floriferousness. One reason these varieties have not been more generally accepted by gardeners, I suspect, is that much of the stock on the market has been grown from seeds. Actually, both kinds must be grown from cuttings of true stock, and only then can one expect uniform plants.

The other small candytuft, *I. saxatilis*, that came to mind when the Ohio letter was read can be the most charming little mite, or it can be just another candytuft, neither ex-

citing in growth habits nor in flower. The plant that I have in mind never grows over one or two inches tall, but its stems may be six or eight inches long, spreading out on the surface of the soil or following rock faces in their vicinity. And it certainly makes a beautiful plant when it hides itself under a carpet of snowy-white flowers in earliest spring. Here it becomes so impatient that a few warm days in late October or November cause the plant to burst forth, and it is always ready to appear as soon as the snow leaves it in spring. It is so easily handled and so indestructible in my light soil that I have fallen into the mistaken notion that it would be equally amiable in any soil or climate. I have been told, though, by friends to whom I have sent plants that they are usually short-lived in heavy soil unless they are given a high, well drained position.

Some Thoughts on *Sidalcea*.

In *sidalcea* we have a strictly American genus of malvaceous plants

which had to be sent abroad for improvement, and even then the family is not accepted by many persons living on this side of the Atlantic. Commencing with the white-flowered *S. candida*, the rose-colored *S. nervata* and the rose to purple *S. malvaeflora*, skilled European gardeners have added to size of flower and raceme as well as to range of color. It has long been a puzzle for me to find a reason for the neglect of these plants in their native land, and I have finally come to the conclusion that, aside from our apathy when our own plants are concerned, eastern gardeners are usually disappointed in their first efforts to grow these species. I am not well enough acquainted with the genus in its natural habitats, but the improved forms which I have had from Europe and especially from England where they seem to have reached their peak require more moisture than our eastern climate provides. Give them a soil rich in well rotted barnyard manure or other form of decayed humus and a good mulch before the coming of dry

PAPERSHELL PECAN TREES

We have a surplus of around 10,000 pecan trees of the following varieties: **Jack Ballard**, **Stewart** and **Madame X**. Excellent root system. Better trees are not grown. We quote as follows:

	Each Per 10	Each Per 100
7 to 8 feet.....	\$2.75	\$2.50
6 to 7 feet.....	2.25	2.00
5 to 6 feet.....	2.00	1.75
4 to 5 feet.....	1.50	1.40
3 to 4 feet.....	1.25	1.10
2 to 3 feet.....	1.00	.90

THOMAS WALNUT TREES

We have a few thousand **Thomas Walnut** of the following sizes:

	Each Per 10	Each Per 100
5 to 6 feet.....	\$1.25	\$1.15
4 to 5 feet.....	1.10	1.00
3 to 4 feet.....	.90	.80
2 to 3 feet.....	.75	.65

PIGGOTT NURSERY COMPANY
PIGGOTT, ARKANSAS

GRAFTED STOCK For Spring, 1951, Delivery

	Per 10	Per 100		Per 10	Per 100
<i>Acer palmatum atropurpureum</i>	\$7.00	\$65.00	<i>Magnolia stellata rosea</i>	\$6.50	\$60.00
<i>Acer palmatum dissectum atropurpureum</i>	7.00	65.00	<i>Magnolia stellata rubra</i>	7.00	65.00
<i>Cornus florida alba plena</i>	5.00	45.00	<i>Magnolia stellata, Water Lily</i>	6.50	60.00
<i>Cornus florida rubra</i>	5.00	45.00	<i>Magnolia rustica rubra</i>	7.00	65.00
<i>Cornus florida rubra Prosser</i>	7.00	65.00	<i>Thuja occidentalis douglasii (spiralis)</i>	4.50	40.00
<i>Fagus sylvatica riversi</i>	7.00	65.00	<i>Thuja occidentalis elegantissima</i>	4.50	40.00
<i>Ilex opaca femina</i>	5.00	45.00	<i>Thuja occidentalis lutea, Mary Corey</i>	4.50	40.00
<i>Juniperus chinensis columnaris glauca</i>	5.00	45.00	<i>Thuja occidentalis lutea, George Peabody</i>	4.50	40.00
<i>Juniperus chinensis columnaris viridis</i>	5.00	45.00	<i>Thuja occidentalis nigra</i>	4.50	40.00
<i>Juniperus chinensis keiskei</i>	5.00	45.00	<i>Thuja occidentalis pyramidalis</i>	4.50	40.00
<i>Juniperus chinensis neoboriensis</i>	5.00	45.00	<i>Thuja occidentalis rosenthalii</i>	4.50	40.00
<i>Juniperus chinensis sargentii</i>	5.00	45.00	<i>Thuja occidentalis wareana (sibirica)</i>	4.50	40.00
<i>Juniperus chinensis sargentii glauca</i>	5.00	45.00	<i>Thuja orientalis aurea nana</i>	4.00	35.00
<i>Juniperus chinensis meyeri</i>	5.00	45.00	<i>Thuja orientalis conspicua</i>	4.00	35.00
<i>Juniperus virginiana burkii</i>	5.00	45.00	<i>Thuja orientalis elegantissima</i>	4.00	35.00
<i>Juniperus virginiana canaertii</i>	5.00	45.00	<i>Tsuga canadensis pendula</i>	5.50	50.00
<i>Juniperus virginiana elegantissima</i>	5.00	45.00	<i>Tsuga canadensis pendula, 1-yr. grafts</i>	7.00	65.00
<i>Juniperus virginiana glauca</i>	5.00	45.00	All the above shipped from 2 1/4-inch rose pots.		
<i>Juniperus virginiana globosa</i>	5.00	45.00			
<i>Juniperus virginiana kosteriana</i>	5.00	45.00			
<i>Juniperus virginiana schottii</i>	5.00	45.00			
<i>Juniperus virginiana pyramidaliformis hillii</i>	5.00	45.00			
<i>Juniperus sabina Von Ehron</i>	5.00	45.00			
<i>Magnolia lennei</i>	7.00	65.00			
<i>Magnolia soulangeana</i>	6.50	60.00			
<i>Magnolia soulangeana nigra</i>	6.50	60.00			
<i>Magnolia stellata</i>	6.50	60.00			

Prices are F.O.B. Mountain View, N. J., packing additional at cost. Usual terms to those of established credit. No goods sent C.O.D. unless 25 per cent of amount is sent with order. All this material is listed subject to prior sale and crop conditions.

HESS' NURSERIES

MOUNTAIN VIEW, N. J.

weather, and they should put on a good performance. It is doubtful if the plants ever attain the popularity here that they have in the more equable and moister climate of the British isles, where they play a prominent role as a cut flower and as a border plant, but it is easy to see that proper handling of the better forms will show they deserve the care needed to secure superfine results. It would be useless to take space to enumerate named varieties which now dominate the European scene, because few, if any, are available in this country. It would surely repay some American grower to make them available here.

Shrubby Cinquefoil.

It would be possible for a gardener who was, at the same time, a plant student to spend his lifetime working with potentilla alone. I have no definite figure on the number of species recognized by botanists, but it must be close to 1,000. A monographed edition published in 1856 enumerated more than 700 distinct kinds; splitters have added their quota, no doubt, and explorers have brought many more to light.

One would not have to go far in his study of the genus before he would be struck by the large number

[Continued on page 48.]

TWO NEW JUNIPERS

Juniperus Heasleyi

A beautiful, upright-growing tree, needs no trimming. A true blue color the year around. Grafted on *Juniperus virginiana* understocks. Picture on request. Spring, 1951, delivery.

\$65.00 per 100; \$550.00 per 1000

Juniperus Chinensis Hetzi

A beautiful, tall-growing, upright tree. Good green color with two types of foliage. Scions from the original plant. Grafted on *Juniperus virginiana* understocks. Spring, 1951.

\$65.00 per 100; \$550.00 per 1000

HEASLEY'S NURSERIES

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QUALITY MERCHANDISE AT REASONABLE PRICES

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Wholesale Nurserymen Since 1922

QUALITY LINERS

Red-flowering Dogwood	Per 100
6 to 10 ins., grafts (1-yr.).....	\$60.00
Canadian Hemlock	
5 to 12 ins., trans. (sheared).....	17.50
Magnolia S. Nigra (red)	
8 to 15 ins., trans. (own-root).....	75.00

Send for new Fall List

POSSUM HOLLOW NURSERIES

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This Business of Ours

Reflections on the Progress and Problems of Nurserymen

By E. Sam Hemming

OUR UNSEEN FRIENDS.

The past spring I planted a Japanese persimmon on my front lawn. In the summer, while walking by it, I noticed a few leaves curled by aphids. Making a mental note to spray the plant if it got worse, I went back to the plant about a week later. The first leaf uncurled showed no aphids, but in their place was a click beetle, and in each successive leaf uncurled there were no aphids and one click beetle.

We speak blithely of the balance of nature, and in most cases it performs its magic without any notice. Only in special incidents like the foregoing do we see what goes on. The widespread use of DDT, valuable as it has been, has made the meaning of the balance of nature much more vivid. In a certain garden with which I am familiar, the persistent spraying for Japanese beetle has made red spider a veritable curse and, to make things worse, has apparently killed the parasite that controls aphids on crape myrtle. Heretofore we never thought of spraying crape myrtles; now they become a disagreeable sooty black from the fungus that attacks the dew that comes from the aphids.

Our unseen friends, besides the click beetle, are certain other beetles, the ladybug or ladybird beetle, many wasps, lacewing flies, ichneumon flies, praying mantis, a gray saddle-back beetle which I cannot name that has a sharp snout often containing a Japanese beetle, and many other insects known only to professional entomologists.

On our lawn is a large old western catalpa, which is usually attacked by the catalpa sphinx caterpillar. Most years it is not necessary to spray the tree because the caterpillars drop to the ground laden with tiny white cocoons containing the eggs of the ichneumon flies. As mean as the several types of wasps can be when they sting you, most of them have their stinger for an entirely different purpose. They attack many caterpillars, sting them and carry them to their nests or burrows, where they lay eggs in the caterpillars later to hatch and feed. The sting doesn't kill; it merely anesthetizes the caterpillar. The U.S.D.A. introduced a certain wasp

that is predatory on Japanese beetle in order to aid in the latter's control.

Nurserymen are familiar with the importation of the black ladybug with red spots, which was quite successful in controlling the cottony scale on citrus fruits. A similar ladybug that attacked San Jose scale was also imported with useful but less spectacular results.

All of us are familiar with the praying mantis, which has a large capacity for flies, beetles and other insects, including its own brothers and sisters.

Besides the click beetles the largest group of predatory insects are the beetles. These insects keep the grubs, worms, caterpillars and other soft-bodied insects under control. They exist in great quantities and eat great quantities. Perverse as nature is so apt to be, many of the beneficial beetles have a larva stage that is parasitic on plants.

Still another class of beetles is our friend, although not quite so directly; these are the scavenger and carrion beetles. Have you ever noticed how rarely you see the carcass of a dead bird or wild animal? This is because these beetles are as efficient as bacteria in removing dead organic matter. Similarly, decayed vegetable matter and wood are re-

turned to the soil rapidly by these insects.

An even greater benefit is the way these countless insects tunnel and aerate the soil, which, coupled with their ability to hasten the decay of vegetation, may benefit us in the enrichment of soil beyond all calculation. The earthworm gets all the credit, but probably does only a minute fraction of the work. Our very existence might well be impossible without this vital step in the balance of nature.

Although they are not insects, the spiders deserve at least a mention, for they certainly do their share in keeping down the population of flies and many other insects in our garden as well. As one entomologist told me, "all spiders are more or less poisonous," but the poison was not really meant for human beings; it was meant for other insects.

The nurseryman is as vitally interested in the control of parasitic insects as is any other agriculturist, but in his fight he must not overlook the aid received from his unseen friends.

E. S. H.

SCOTCH BROOM.

Scotch broom is one of those attractive plants with several landscape uses that has the contrary habit of not doing what you want it to do. It is a quick-growing shrubby plant with evergreen stems and very showy and abundant yellow flowers, characteristic of legumes.

Coming from Europe, the plant is said to have been introduced by

Get to Know Leghorn's

For Your Quality Evergreens

Growing a fine line of liners and specimen Evergreens in choice varieties, specializing in Yews.

Write for prices.

LEGHORN'S EVERGREEN NURSERIES

Geer Street

CROMWELL, CONN.

Thomas Jefferson and to have become a nuisance in some parts of Virginia. Here on the Eastern Shore of Maryland, the only place it seems to have naturalized itself is along the sandy and gravelly banks of the Chesapeake and Delaware canal. I have made an effort to naturalize it on several customers' shore line banks without success.

We have grown the plant in the nursery, and when the seeds germinate it makes a small plant the first year; the next year it makes maybe four or five feet of growth and usually flowers. The plants tend to die back in the winter, and rarely do they last more than three or four years. In spite of the difficulty in naturalizing the plant, scattered seedlings tend to come up in different places in the nursery. The plant transplants only indifferently; small plants can be handled bare root if given nursery care, and larger ones handle fairly well B&B. The trouble lies in the unbelievably small root system; a 6-foot to 8-foot plant will have a root system typical of a 2-foot to 3-foot shrub, and it is best to prune back the plant fairly hard.

In addition to Scotch broom, there are a number of other species and varieties of broom with showy flowers running from white to yellow to purple and even to brown. These are grown in greenhouses and in California, and some of them would probably be hardy with us in the middle Atlantic states, but unless they were easier to handle with satisfaction they would be disappointing. There is not much satisfaction in a plant that does not transplant easily and then is short-lived when it does take hold, nor in a plant that naturalizes only under very limited conditions. E. S. H.

COVER ILLUSTRATION.

Juniperus Horizontalis Plumosa.

Juniperus horizontalis plumosa, the Andorra creeping juniper, is one of our best low-growing evergreens. Unfortunately, this variety is somewhat susceptible to juniper blight.

As generally known, *Juniperus horizontalis*, the creeping juniper, a low, procumbent shrub with trailing branches, is native to the northern United States, a territory extending from Nova Scotia to Alberta, south to New Jersey, Minnesota and Montana.

The Andorra juniper is said to have been found first in 1907. The Andorra Nurseries, Inc., received it in a shipment of seedlings of *Juni-*

EUONYMUS PATENS

(*E. Kiautschovicus*)

SPREADING EUONYMUS (Willis Strain)

The most versatile and useful hardy broad-leaved evergreen.

Euonymus Patens usually exhibits a wide variation in foliage and habit of growth. The Willis strain, which is the result of many years of observation and selection, has medium-size, rounded, bright green, shiny leaves, and it grows rapidly and naturally into uniform, bushy, highly ornamental plants. Some seasons its beauty is enhanced by the production of attractive orange-red fruits that resemble those of the bittersweet.

Its uses are many:

Hedges—from 1 foot to 6 feet high. Excellent for edging formal plantings, rose gardens, etc.

Screen Plantings—grows naturally to 6 or 8 feet.

Foundation Plantings—especially desirable when plants of low or intermediate height are wanted.

Mass Plantings on lawns and to mark entrances.

Covering foundations, walls and chimneys. Clings to brick, stone and stucco without support.

For planting in very narrow areas where there is not sufficient room for ordinary shrubs. Can easily be kept in bounds by shearing.

Good substitute for Boxwood.

Formal Plantings—shears readily into formal shapes.

Adds interest to ordinary shrub or evergreen plantings.

Background plantings for annual and perennial gardens.

Transplants easily and grows rapidly. Starts growing early in the spring and is just about the last thing to stop growing in the fall. Always pleases the customer.

PRICES

	Per 10	Per 100
24 to 30 inches, extra-heavy, B&B.....	\$35.00	\$325.00
18 to 24 inches, extra-heavy, B&B.....	25.00	225.00
18 to 24 inches, heavy, B&B.....	20.00	175.00
15 to 18 inches, extra-heavy, B&B.....	17.50	150.00
15 to 18 inches, heavy, B&B.....	15.00	125.00
18 to 24 inches, bare root, puddled.....	10.00	90.00
15 to 18 inches, bare root, puddled.....	7.50	67.50
12 to 15 inches, bare root, puddled.....	6.50	55.00

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"California-grown — Quality Known"

BUSHES — CLIMBERS — TREES

Always a fine selection in both patented and standard varieties. All the leading hybrid teas and an exceptionally good list of climbers and floribundas.

Write any time for information — your inquiry is welcome and will receive prompt, personal attention.

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NORTHERN-GROWN EVERGREENS

SPRUCE · JUNIPER

TAXUS · ARBORVITAE

Write for list.

BROWN DEER NURSERIES

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Milwaukee 1, Wis.

LILACS

On own roots.
Large plants. 5 ft. and up.
Charles X, William Robinson,
Pres. Grevy, Leon Gambetta, etc.

To plant now
AMERICAN ARBORVITAE, 10 ft.
An assortment of heavy stock
for landscaping.

RED LAKE RED CURRANTS, 2-yr. No. 1

SAMUEL FRASER NURSERY
GENESEO, N. Y.

FLOWERING SHRUBS SPECIAL

Each

Weigela Eva Rathke,
2 to 3 ft. \$0.35

Hydrangea Peegee,
18 to 24 ins.25

Hydrangea Peegee,
2 to 3 ft.30

THE RHODE ISLAND NURSERIES
NEWPORT, RHODE ISLAND

CHINESE CHESTNUT TREES

for Retailers
Blightproof Ching Chow Strains

SUNNY RIDGE NURSERY
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SPECIAL

PHILADELPHUS CORONARIUS
2 to 3 ft. and 3 to 4 ft.
Well rooted with 5 to 6 Canes

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Growers and Distributors of
ORNAMENTAL NURSERY STOCK

Truckloads only, no boxing.
60 acres growing. Skaneateles, N. Y.

WANTED

1000 French Tree Lilacs 3 to 4 ft.

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Wholesale Nurseries
Geneva, N. Y.

perus communis depressa collected in the state of Maine. It was later identified by Alfred Rehder, of the Arnold Arboretum, as a variety of Juniperus horizontalis. The Andorra juniper is a good example of how a name once applied to a plant is difficult to drop even though it is known to be in error.

Probably because it was found in a shipment of seedlings of Juniperus communis depressa, the Andorra juniper was listed as Juniperus communis depressa plumosa, and this name still persists in the trade. The plant has none of the characteristics of Juniperus communis and certainly any plantsman or nurseryman is in error to list it as a variety of Juniperus communis. The only way that the nomenclature of this plant will be corrected is for the nurserymen and other plantsmen to refrain from referring to it as such and listing it erroneously. It would seem that they have a certain obligation to use the correct nomenclature of a plant when that nomenclature is known and not continue to use an erroneous name just because someone misnamed the plant at first.

Juniperus horizontalis plumosa can be described as a depressed plant with a flat top, as much as six or eight feet across and up to eighteen to twenty-four inches in height. The leaves are linear, bluish-green in summer, turning to a purple in the fall, and this color persists throughout the winter.

Actually, we find considerable variation in this variety in the trade. Apparently these variations have come about by selection of propagating wood. Two types are quite generally available. One type will be distinctly procumbent and creeping in its habit of growth and can be recommended as a ground cover or bank cover plant. The other common type is more compact, less inclined to spread and develops into a plant up to eighteen to twenty-four inches in height. It would seem that both of these types would have extensive use in landscape plantings. Occasionally, still more bushy types are seen in nurseries.

The Andorra juniper is adapted to a wide range of soil conditions and transplants readily, but should be used in sun or, at the most, only partial shade. Until recently, the Andorra juniper has been relatively free from serious insects and diseases. Within the past few years it has become highly susceptible to juniper blight in our territory around Columbus, O. This is a difficult disease to control. In landscape plant-

TAXUS

Quality stock with J. B. certificate; in carload or truck-load lots.

TAXUS capitata, 2½ to 8 ft.

TAXUS cuspidata,
1½ to 4 ft.

TAXUS nana and
intermedia, 1 to 3 ft.

TAXUS hicksi and **hatfieldi**,
2 to 4 ft.

Also

TAXUS capitata liners,
3 to 4 yrs., 1 to 2 ft.

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Perennials, Roses

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Leading wholesale source for
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Seedlings and Transplants

For Fall, 1950, and Spring, 1951

Write for price list.

SUNCREST EVERGREEN NURSERIES
JOHNSTOWN, PA.

hardy rhododendrons and azaleas, and Dr. Douglas H. Hamly, of the University of Toronto, discussed the use of color standards in the biological sciences.

The guests toured the college campus and inspected the plant science range of fifty greenhouses.

GARDEN AT INDIANA FAIR.

Model garden exhibits were shown during the October dairy show held at the Indiana state fairgrounds, Indianapolis, through the cooperative efforts of the Indianapolis city park department, the Indianapolis Landscape Association and the Allied Florists of Indianapolis. James Maschmeyer, president of the landscape group and an executive committee member of the Indiana Association of Nurserymen, provided the crew of workers and many of the ideas used in the exhibit.

Materials used included Oregon holly grape, euonymus species, Viburnum burkwoodi, American high-bush cranberry, barberry species, Cotoneaster horizontalis, spreading Japanese yew, pine and spruce.

FOIL PROTECTS TREES.

While unwrapping aluminum foil from a package of frozen food, I. D. Winter of the division of horticulture of the University of Minnesota, conceived the idea that this foil, either new or used, might be useful to protect young fruit trees from rabbits and mice. After applying the foil for two winters, he reports his success in paper 710 of the miscellaneous journal series of the Minnesota agricultural station.

He found a strip five inches wide gave ample material to mold around the tree trunk in overlapping folds, and this method of application seemed easier than a spiral wrap. The foil placed there in the autumn of 1948 is still there, even after an 86-mile-an-hour gale, October 10, 1949.

Six wrapped trees survived unharmed and grew vigorously, while the unwrapped trees were girdled and killed, five the first winter and the remaining one during the second winter.

Tests were made of the temperature underneath the bark at the hour of maximum difference between the wrapped and unwrapped tree limbs. The difference was from 11 to 24 degrees. Hence it seems reasonable to believe that the reflection of the sun's rays by the bright surface of the foil would protect the trees from

NEW!

VIBURNUM CHENAULTI

Another evergreen hybrid of Viburnum carlesi.

More compact in growth than Viburnum burkwoodi

Flowers identical to Viburnum carlesi.

Liners 6 to 9 inches in plant bands.

Per 10	Per 100	Per 1000
\$5.00	\$35.00	\$325.00

FIELD-GROWN PLANTS

18 to 24 ins., B.B., \$17.50 for 10; \$150.00 for 100.

2 to 3 ft., B.B., \$25.00 for 10; \$225.00 for 100.

Packing at cost

THE SIEBENTHALER COMPANY

CATALPA DRIVE DAYTON 5, OHIO

For Fall Planting

TAXUS LINERS

Strong, 2-yr., field-grown.

HATFIELDI

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CUSP. SPREADING

INTERMEDIA

... and other varieties in moderate quantities.

KOSTER NURSERY

BRIDGETON, N. J.

LINING-OUT STOCK

in wide assortment

Hardy Azaleas, Pink Dogwood, Jap. Red Maples, Old English Boxwood, Lilacs (French Hyb.), Evergreens, etc., in 1, 2 and 3-yr. transplants, at competitive prices. Write for list.

DEERFIELD NURSERIES

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ORNAMENTAL EVERGREENS

Trees & Shrubs

BAGATELLE NURSERY

P. O. Huntington Station, N. Y.

PACHYSANDRA

The ideal permanent evergreen ground cover plant for shady areas in all climates. Strong, well rooted, 1-yr.-old plants, \$3.75 per 100; \$35.00 per 1000; 5000 or more at \$32.50.

PEEKSKILL NURSERY SHRUB OAK, N. Y.

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SMALL FRUITS

These prices cancel all previous lists and are subject to change without notice. 250 or over at 1000 rate. Boxing at cost. All prices F.O.B. Bridgman. Usual terms.

GRAPES

	Per 100	Per 1000
Concord, 2-1	\$10.00	\$ 80.00
Concord, 1-1	8.00	60.00
Niagara, 2-1	11.00	90.00
Niagara, 1-1	9.00	70.00
Catawba, 2-1	11.00	90.00
Catawba, 1-1	9.00	70.00
Fredonia, 2-1	11.00	90.00
Fredonia, 1-1	9.00	70.00
Delaware, 2-1	14.00	120.00
Delaware, 1-1	11.00	90.00
Van Buren, 2-1	22.00	
Van Buren, 1-1	16.00	
Sheridan, 1-1	11.00	

BLACKBERRIES

Eldorado, transplants	6.50	55.00
Eldorado, No. 1, r.c.	5.00	40.00
Alfred, transplants	6.50	55.00
Alfred, No. 1, r.c.	5.00	40.00
Early Harvest, No. 1, r.c.	5.00	40.00

BOYSENBERRIES and DEWBERRIES

Boysenberry (Common), No. 1 tips	5.50	45.00
Boysenberry (Thornless), No. 1 tips	5.50	45.00
Lucetia Dewberry, No. 1 tips	5.50	40.00

CURRENTS

Wildor, 3-yr. heavy	15.00	130.00
Wildor, 2-yr. No. 1	12.00	100.00
Wildor, 1-yr. No. 1	7.00	60.00
Red Lake, 2-yr. No. 1	16.00	
Red Lake, 1-yr. No. 1	12.00	

GOOSEBERRIES

Downing, 2-yr. No. 1	25.00	
Houghton, 2-yr. No. 1	25.00	
Champion, 2-yr. No. 1	25.00	

BLUEBERRIES

	Each	Per 10	Per 100	Per 1000
2-yr., 9 to 12 ins., bearing age	\$0.40	\$3.50	\$32.50	\$300.00
3-yr., 12 to 18 ins., bearing age	.55	5.00	47.50	450.00
4-yr., 18 to 24 ins., bearing age	.75	7.00	67.50	650.00

Write for Special Quotations on Quantity Lots.

RED RASPBERRIES

	Per 100	Per 1000
Latham, transplants	\$ 7.50	\$ 62.50
Latham, 1-yr. No. 1	6.00	50.00
Chief, transplants	7.00	60.00
Chief, 1-yr. No. 1	5.50	45.00
Sunrise, transplants	7.00	60.00
Sunrise, 1-yr. No. 1	5.50	45.00
Indian Summer, transplants	8.00	70.00
Indian Summer, 1-yr. No. 1	6.50	55.00
St. Regis, transplants	7.00	60.00
St. Regis, 1-yr. No. 1	5.50	45.00

BLACK RASPBERRIES

Cumberland, trans. No. 1	8.00	70.00
Cumberland, trans. No. 2	6.50	55.00
Cumberland, tips, No. 1	4.50	35.00
Logan, trans. No. 1	8.00	70.00
Logan, trans. No. 2	6.50	55.00
Logan, tips, No. 1	4.50	35.00
Morrison, trans. No. 1	9.00	80.00
Morrison, trans. No. 2	7.50	65.00
Morrison, tips, No. 1	5.00	40.00

PURPLE RASPBERRIES

Sodus, No. 1, tips	5.50	45.00
--------------------	------	-------

ASPARAGUS

Paradise and Washington		
3-yr. heavy	4.00	30.00
2-yr. No. 1	2.50	18.00
1-yr. No. 1	1.70	12.00
1-yr., in 10,000 lots		10.00

VICTORIA RHUBARB

Whole Roots		
1½-in. and up	8.00	75.00
1 to 1½-in.	5.50	50.00
¾ to 1-in.	4.00	35.00
½ to ¾-in.	3.00	25.00

RED RHUBARB

Canada Red, No. 1 divisions	40.00	350.00
McDonald, No. 1 divisions	30.00	250.00

HORSE-RADISH

Cuttings, 4 to 5 ins.	3.00	20.00
Whole Roots	5.00	40.00

sunscauld injury which may occur during the winter or early spring.

There is a question whether the foil should be permitted to remain on the trees during the summer months. The bark was found to be abnormal in appearance, and there was mold or other fungus growth under the foil, although tree growth continued vigorous and normal.

Dr. Leon Snyder, Minnesota extension horticulturist, adopted this method of rodent protection for his young orchard planted in the spring of 1949. He wrapped 650 trees, using a strip about six inches wide and eighteen inches long for each tree, at a cost of 1½ cents per tree for the foil. Eight rolls of frozen food wrap, each fifty feet long, were used. Two men wrapped the 650 trees in seven hours.

RECENTLY featured in a local opera presentation of Vittorio Giannini's "Blennerhassett" was Harold Daniels, who is associated with his father in Mecklenburg Nurseries, Inc., Charlotte, N. C. Since his student days, Mr. Daniels has studied voice, orchestra work, piano and violin. He has played in numerous Little theater performances at Charlotte and he is a soloist at the Dilworth Methodist church.

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Our Northern Ohio-grown Roses are without equal. Carefully handled from planting to shipping. See our fields and be convinced.

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TREES and PLANTS**

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DELAWARE

Coming Events

MEETING CALENDAR.

December 4 and 5, Minnesota State Nurserymen's Association, Dyckman hotel, Minneapolis.

December 6, Western Pennsylvania Nurserymen's Association, Webster Hall hotel, Pittsburgh.

December 6 and 7, Wisconsin Nurserymen's Association, Hotel Schroeder, Milwaukee.

December 11 and 12, Nebraska Association of Nurserymen, Cornhusker hotel, Lincoln.

January 2 to 5, 1951, Indiana Association of Nurserymen, Purdue University, West Lafayette.

January 3 to 5, eastern regional convention, Hotel Statler, New York.

January 3 to 17, short course for landscape nurserymen, Virginia Polytechnic Institute, Blacksburg.

January 4, New York State Nurserymen's Association, Hotel Statler, New York city.

January 4, Long Island Nurserymen's Association, Hotel Statler, New York.

January 4 and 5, Oklahoma State Nurserymen's Association, Biltmore hotel, Oklahoma City.

January 8, Maryland Nurserymen's Association, Lord Baltimore hotel, Baltimore.

January 8, Missouri State Nurserymen's Association, Hotel Jefferson, St. Louis.

January 9 and 10, Western Association of Nurserymen, Hotel Jefferson, St. Louis.

January 11, Connecticut Nurserymen's Association.

January 11 to 13, Iowa Nurserymen's Association, Hotel Kirkwood, Des Moines.

January 15, National Landscape Nurserymen's Association, Hotel La Salle, Chicago.

January 15, National Mail Order Nurserymen's Association, Hotel La Salle, Chicago.

January 15 and 16, arborists' school, Cornell University, Ithaca, N. Y.

January 16 to 18, Illinois State Nurserymen's Association, Hotel La Salle, Chicago.

January 22 to 24, short course for arborists, landscape gardeners and nurserymen, Neil House, Columbus, O.

January 24 to 26, Michigan Association of Nurserymen, Hotel Pantlind, Grand Rapids.

January 25 and 26, Ohio Nurserymen's Association, Neil House, Columbus.

January 26, Western New York Nurserymen's Association, Rochester.

January 28 to 30, Virginia Nurserymen's Association, Hotel John Marshall, Richmond.

January 29 and 30, Kentucky State Nurserymen's Association, Seelbach hotel, Louisville.

January 31, short course for nurserymen, University of Maryland, College Park.

January 31 and February 1, Pennsylvania Nurserymen's Association, Roosevelt hotel, Pittsburgh.

February 1, Oregon Association of Nurserymen, Georgian room, Heathman hotel, Portland.

February 1 and 2, Tennessee State Nurserymen's Association, Andrew Jackson hotel, Nashville.

February 2, New Jersey Association of Nurserymen, Trenton.

February 6 to 8, New England Nurserymen's Association, Hotel Kenmore, Boston, Mass.

February 9, West Virginia Nurserymen's Association, Gauley Bridge.

February 14 to 16, Midwest chapter of the National Shade Tree Conference, Hotel La Salle, Chicago.

February 20, Rhode Island Nurserymen's Association, Johnson's Hummock's, Providence.

March 22 and 23, Southern Shade Tree Conference, Palm Beach, Fla.

LONG ISLAND MEETING.

January 4 is the date set for the annual winter meeting of the Long Island Nurserymen's Association, to be held at the Hotel Statler, New York. David R. Bulk, secretary, says that the members will hold their session in conjunction with the eastern regional convention, scheduled January 3 to 5 at the same hotel.

OKLAHOMA DATES SET.

Members of the Oklahoma State Nurserymen's Association will meet January 4 and 5 at the Biltmore hotel, Oklahoma City, for their mid-winter convention, states Ted Tetrick, secretary. President Richard Bloss held an executive committee meeting in his office at the Sneed Nursery Co., Oklahoma City, during the first week in November, when

AMERICAN NURSERYMAN

the convention time and place were set and committees were appointed.

Attending the meeting were Mario Sanseverino, O. K. Gardens Nursery & Landscape Co., Tulsa, vice-president; Ted Tetrick, Tetrick Nursery, Ponca City, secretary-treasurer; J. Frank Sneed, Sneed Nursery Co.; Lee Carter, R. Lee Carter Greenhouse, and C. Y. Higdon, Higdon's Flower Shop & Nursery, all located at Oklahoma City.

MARYLAND PLANS.

Executive members of the Maryland Nurserymen's Association met recently and decided that the association would have two meetings this winter. George S. Langford, educational secretary, says that the annual winter session will be held January 8 at the Lord Baltimore hotel, Baltimore, while the second meeting will be a short course for nurserymen, that is scheduled for January 31 at the University of Maryland, College Park.

TENNESSEE WINTER MEET.

Headquarters for the 2-day meeting of the Tennessee State Nurserymen's Association at Nashville, February 1 and 2, will be the Andrew Jackson hotel. Robert W. Boyd, secretary, has announced that the present tentative plans are to hold a smoker Wednesday evening and a banquet Thursday evening.

President H. R. Potter, of H. R.

And again it is CHICAGO IN JANUARY!

For the largest gathering of Nurserymen that will be brought together by any of the winter meetings.

It will pay you to be there and it will also pay you to make your hotel reservations NOW. Indications are that our 1951 convention will again be the "Largest Ever."

Of all months, January is the heaviest convention month in Chicago, and hotel men advise us that the situation will be tight and early reservations necessary. Write now for your reservations to the Hotel La Salle, La Salle at Madison, Chicago 2, Ill., and be sure to mention the nurserymen's meetings.

Meeting Dates:

**ILLINOIS STATE NURSERYMEN'S ASSOCIATION,
ANNUAL CONVENTION**
January 16-17-18, 1951

**AMERICAN ASSOCIATION OF NURSERYMEN,
BOARD OF DIRECTORS**
January 14-15-16, 1951

NATIONAL LANDSCAPE NURSERYMEN'S ASSOCIATION
January 15, 1951

Closed meetings of a number of allied national nurserymen's associations will also be held over the week-end.

ILLINOIS STATE NURSERYMEN'S ASSOCIATION

Potter Nursery, Joelton, has appointed the following committees: Local arrangements, Richard Jones, Jesse Tritschler, G. V. Tibbs, Robert McIntyre and George Moorehead; booths, H. R. Potter; printed program, Hubert Nicholson; speaking program, Richard Jones; membership, Henry Boyd, and smoker, John Fraser, Jr., and Henry Homer Chase.

ILLINOIS PROGRAM.

Members of the Illinois State Nurserymen's Association will meet at the Hotel La Salle, Chicago, January 16 to 18, for a heavily scheduled 3-day program.

As usual, the Tuesday afternoon program is to be given over to a discussion of the activities of the American Association of Nurserymen. After Roy F. Clavey, president of the Illinois association, has given his president's address at the opening session, the meeting will be turned over to Richard P. White, Washington, D. C., executive secretary of the A. A. N., who will present several speakers under the general heading of "Your National Association in Action." Wayne Ferris, Hampton, Ia., president of the A. A. N., will speak on "Policies and Program"; Curtis H. Porterfield, Washington, D. C., administrative assistant, will discuss "Association Routine Activities"; Howard P. Quadland, publicity director, will talk about "Promotion," and Mr. White will conclude the meeting with a discussion of "National Problems Raised by the Defense Program."

Wednesday's luncheon speaker will be Dr. C. J. Birkeland, newly appointed head of the department of horticulture at the University of Illinois, Urbana. Since the disease threat to elms and oaks of the central west presents one of the most serious horticultural problems to Illinois and surrounding states, the remainder of Wednesday afternoon will be given over to a discussion of the shade tree situation.

Noel B. Wysong, chief forester of the Cook county forest preserve, will discuss oak wilt; Dr. L. R. Tehon, head of the section of applied botany and plant pathology of the Illinois State Natural History Survey, will talk about phloem necrosis and Dutch elm disease, and Dr. L. C. Chadwick, professor of horticulture at Ohio State University, will discuss shade trees which nurserymen might well grow and recommend as substitutes for the elms and oaks in areas where it is no longer advisable to plant those two genera.

Edward McFaul, an outstanding



Philadelphus virginialis. Cut off at one and two years. Resulting in very heavy plants.

	Per 100	Per 1000
<i>Philadelphus virginialis</i> , very heavy, 2 to 3 ft.	\$40.00	\$350.00
<i>Philadelphus virginialis</i> , very heavy, 3 to 4 ft.	50.00	450.00
<i>Forsythia spectabilis</i> , 3 to 4 ft.	35.00	300.00
<i>Kerria japonica</i> , 18 to 24 ins.	40.00	....
<i>Kerria japonica</i> fl. pl., 2 to 3 ft.	60.00	....

FAIRVIEW EVERGREEN NURSERIES, Fairview, Pa.

J & P

**EVERGREENS
SHADE TREES**

**SHRUBS, VINES
HEDGE PLANTS, etc.**

In good assortment.

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TAXUS MEDIA HALLORAN

Past winters have proved this variety to be very well adapted for the middle western climate. We have 1, 2 and 3-year liners to offer.

VERKADE'S NURSERIES

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LINING-OUT TAXUS

3, 4, 5-yr., ready for field rows.

Write for prices.

VAN CHESKY'S NURSERIES

Weston School House Road
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BUXUS SEMPERVIRENS

12 to 15 ins., XXX, B&B
\$10.00 per 10; \$90.00 per 100
No Boxing.

EASTERN SHORE NURSERIES, Inc.
EASTON, MARYLAND

ORNAMENTAL STOCK

Abelia Grandiflora
Abelia Sherwoodi
Berberis T. Atropurpurea
Cotoneaster Horizontalis
Ilex C. Rotundifolia
Retinospora, in variety
Taxus Cuspudata
Taxus Hicksi

Many other items.
Let us quote your want list.

DEL-MAR-VA NURSERIES
LINCOLN, DELAWARE

**NORTHERN COLLECTED EVERGREENS
FERNS**

**PLANTS
SHRUBS**

WILLIAM CROSBY HORSFORD
Charlotte, Vermont

NORTHERN - GROWN LINING - OUT STOCK

	Per 100	Per 1000
<i>Betula papyrifera</i>		
1 to 2 ft.....	\$ 6.00	\$ 50.00
2 to 3 ft.....	8.00	70.00
3 to 4 ft.....	25.00	....
4 to 6 ft.....	40.00	....
<i>Clethra alnifolia</i>		
6 to 18 ins.....	6.00	50.00
<i>Ilex verticillata</i>		
1 to 2 ft.....	6.00	50.00
<i>Syringa vulgaris</i>		
1 to 2 ft.....	6.00	50.00
<i>Viburnum cassinoides</i>		
1 to 2 ft.....	6.00	50.00

EVERGREENS

<i>Abies balsamea</i>		
4 to 8 ins.....	4.00	25.00
8 to 12 ins.....	8.00	60.00
<i>Thuja occidentalis</i>		
6 to 9 ins.....	4.00	25.00
6 to 12 ins.....	5.00	40.00
<i>Tsuga canadensis</i>		
4 to 8 ins.....	4.00	25.00
8 to 12 ins.....	5.00	40.00

HEMLOCK TRANSPLANTS

<i>Tsuga canadensis</i>		
4 to 8 ins., 1-yr. tr....	12.00	100.00
8 to 12 ins., 2-yr. tr....	18.00	160.00

The above stock is first-quality collected lining-out stock, except as otherwise noted. Send for complete list of Hardy Native Ferns, Lilies, Orchids, Wild Flowers, Trees, Shrubs and Evergreens.

ISAAC LANGLEY WILLIAMS

P. O. Box 352
EXETER, NEW HAMPSHIRE

ORNAMENTALS TREES SHRUBS EVERGREENS

Wholesale growers of a general assortment for the best landscape plantings.

BRYANT'S NURSERIES

Princeton, Illinois

THUJA OCCIDENTALIS COMPACTA ERECTA (NEW)

We offer this new variety in rooted cuttings; also established stock from 2 1/4-in. pots.

Write for descriptive folder in color.

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WESTMINSTER, MD.

LINERS

Ask for list.

BROUWER'S NURSERIES
Box 25 NEW LONDON, CONN.

POTTED LINERS FIELD LINERS

GRAFTS

(Beetle Certified)

HEASLEY'S NURSERIES
Freeport Rd. BUTLER, PA.

speaker in the field of advertising and personnel management, will be the luncheon speaker Thursday. He was formerly chairman of the department of speech at De Paul University and a lecturer on advertising at Northwestern University.

Luncheon meetings will be held Wednesday and Thursday. The customary banquet scheduled for Wednesday night will be extended after the entertainment features to include several hours of dancing. One new item of entertainment this year will be a luncheon and style show for the ladies, to be held in the Narcissus room of Marshall Field & Co., Wednesday noon.

Extensive exhibits of nursery supplies and equipment will be shown in connection with the convention.

HOST TO WEST VIRGINIA.

John W. Young, of Young Nurseries, Bickmore, will be host to members of the West Virginia Nurserymen's Association when they meet February 9. Secretary F. Waldo Craig says that the group will convene at Gauley Bridge.

INDIANA SPEAKERS.

L. R. Quinlan, Kansas State College, Manhattan, will discuss "Designing the Small Property" when he speaks at the winter meeting of the Indiana Association of Nurserymen, to be held at Purdue University, West Lafayette, January 2 to 5. "If I Were a Nurseryman" will be the subject of Victor Ries, Ohio State University.

Other speakers previously announced are John D. Siebenthaler, of the Siebenthaler Co., Dayton, O., who will discuss customer relations and the promotional methods successfully used by his firm, and M. Truman Fossum, of the agricultural division of the bureau of census of the United States Department of Commerce, Washington, D. C., whose topic will be "Determining the Demand for Nursery Products."

KANSAS HORTICULTURAL SOCIETY PROGRAM.

The eighty-fourth annual meeting of the Kansas State Horticultural Society will be held at Topeka, Kan., December 8 and 9. Headquarters and all sessions will be at the Jayhawk hotel.

Chief speakers will be Stewart Chandler, associate entomologist, University of Illinois, and Prof. W. D. Armstrong, University of

EVERGREEN LINERS IN PLANT BANDS

Wintered in the Greenhouse

Book your order for spring.

JUNIPER, Pfitzer, Andorra, Procumbens, Swedish, Greek.

5 to 8 ins., 14 1/2c
8 to 10 ins., 20c

TAXUS CUSPIDATA, Spreading Japanese Yew.

TAXUS CAPITATA, Upright Japanese Yew.

4 to 6 ins., 14 1/2c

EUONYMUS vegetus.

EUONYMUS patens.

(Large or Small Leaf.)

5 to 8 ins., 14 1/2c

EUONYMUS coloratus.

Beautiful leaf-veined ground cover or wall climber.

Branched field plants,

15 ins., 14 1/2c.

Heavy, outdoor, summer-rooted

cuttings 5c

Above prices are for 300 or more, total order. If less than 300, price is 16c instead of 14 1/2c, 22c instead of 20c, 6c instead of 5c.

McININCH GREENHOUSES

St. Joseph, Mo.

Send your order for the new nursery book, "Garden Guide for the Midwest," to Frank Glenn, 197 W. 11th St., Kansas City, Mo., \$3.75. Author is Stanley McLane, of J. C. Nichols Co., Kansas City builders. He is held in high regard by engineers, builders, real-estate men and nursery trade in this area.

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Write for special list.

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Kentucky. Topics to be discussed are the evaluation of the new sprays based on results of orchard operations in 1950. This will apply both to apple and peach growing. Small fruits, especially strawberries, will also come under careful discussion.

GARDEN SYMPOSIUM AT COLONIAL WILLIAMSBURG.

The fifth annual Williamsburg garden symposium, continuing the popular events which each year have attracted garden enthusiasts from all parts of the nation to historic Williamsburg, Va., center of America's most famous restored colonial gardens, will be held in February, 1951, with a completely new type of program.

The entire 1951 program will be devoted to a practical approach to gardening problems and design and planting trends. It will be held in two separate sessions, of three days each, differing only in selection of speakers, scheduled February 19 to 21 and February 26 to 28, respectively. The symposium is open to all amateur gardeners, horticulturists and interested persons.

During the 3-day sessions, nationally known experts in a number of related fields will give illustrated talks on trends in American gardens, flower arrangements, plant photography, use of herbs in gardens, ways of maintaining the small garden and various types of plants. Each afternoon during the discussion teas specific points brought up in the talks will be discussed with the opportunity of close exchange of ideas between the panel of experts and the registrants. The discussion teas will cover garden design trends, plant materials and a small garden clinic on maintenance problems.

The more than sixty acres of restored colonial gardens in the old city will serve as a laboratory for the symposium, and tours conducted by trained guides will be held each day along with tours of a special on-the-ground exhibit of maintenance equipment and procedures. Optional tours also have been arranged to the nearby James river plantations. Also scheduled during each session of the 1951 symposium is a reception by candlelight in the impressive colonial governor's palace.

Among those who will participate in the symposium will be Louise B. Fisher, creator of flower arrangements for Colonial Williamsburg; Paul F. Frese, editor of Popular Gardening; Helen M. Fox, of the American Herb Society; Gottlieb Hampl, noted plant photographer; Al-

LINING-OUT STOCK LIST

FALL, 1950, and SPRING, 1951

T—Once Transplanted
TT—Twice Transplanted
TTT—Thrice Transplanted

TT—Twice Transplanted
FR—Field Row

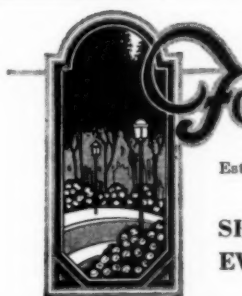
		Per 100	Per 1000
30,000	Althaea, 1-yr. Sdgs.	\$ 3.50	\$ 27.50
2500	Buxus Newport Blue, 3-yr., TT, FR.	35.00	300.00
7500	Cornus Kousa, 2-yr., T, FR.	20.00	150.00
1500	Cornus Kousa, 3-yr., T, FR.	35.00	300.00
15,000	Cydonia Japonica, 1-yr., Sdgs.	3.50	27.50
3500	Cydonia Japonica, 2-yr., T, FR.	8.50	75.00
525	Euonymus Radicans Carrierei, 2-yr., TT, FR.	35.00	300.00
6000	Leucothoe Catesbaei, 2-yr., T.	20.00	150.00
3000	Picea Canadensis Alba, 3-yr., TT, FR.	25.00	200.00
25,000	Pieris Japonica, 1-yr., T.	8.50	75.00
15,000	Pieris Japonica, 3-yr., TT.	30.00	250.00
15,000	Pieris Japonica, 5-yr., TTT, FR.	50.00	450.00
2000	Pinus Mughus, 4-yr., T, FR.	30.00	250.00
75,000	Rosa Multiflora Japonica, 1-yr. Sdgs., 2 to 3 mm.	2.50	15.00
150,000	Rosa Multiflora Japonica, 1-yr. Sdgs., 3 to 6 mm.	3.50	25.00
6500	Taxus Cuspadata, 4-yr., TT, FR.	45.00	400.00
2500	Taxus Cuspadata Nana (Brevifolia), 2-yr., T.	30.00	250.00
3500	Taxus Media Hatfieldi, 2-yr., T.	30.00	250.00
5000	Taxus Media Hatfieldi, 4-yr., TT, FR.	45.00	400.00
4000	Taxus Media Hatfieldi, 5-yr., TT, FR.	70.00	600.00
2500	Taxus Media Hicksi, 2-yr., T.	30.00	250.00
4000	Taxus Media Hicksi, 4-yr., TT, FR.	45.00	400.00
4000	Taxus Media Hicksi, 5-yr., TT, FR.	70.00	600.00
2000	Thuja Occidentalis Nigra, 3-yr., TT, FR.	40.00	350.00
2000	Thuja Occidentalis Pyramidalis, 2-yr. grafts, FR.	70.00	600.00
5000	Thuja Orientalis Aurea Nana (Biota), 2-yr. grafts, FR.	60.00	500.00
25,000	Wistaria Sinensis, 1-yr. Sdgs.	3.50	27.50

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3 to 4 ft., B&B.	30.00	250.00

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bands	\$3.00	\$25.00	\$225.00

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den Hopkins, landscape architect of Colonial Williamsburg; E. L. Kammerer, arboriculturist of the Morton Arboretum, Lisle, Ill.; Helen Totty, rose grower, Madison, N. J.; Elizabeth Van Brunt, expert on herbs, Kitchawan, N. Y.; Freeman Weiss, curator of the American type culture collection, Washington, D. C.; John C. Wister, director of the Arthur Hoyt Scott Horticultural Foundation, Swarthmore; Anne Wertsner Wood, lecturer and writer on gardens, from Swarthmore; Harry Wood, superintendent at Swarthmore College, and Donald Wyman, horticulturist at the Arnold Arboretum, Jamaica Plain, Mass.

An all-inclusive rate for symposium registrants has been worked out by Colonial Williamsburg which covers registration, admission to the exhibition buildings, tours, lectures and room and meals at either the Williamsburg Inn or Williamsburg Lodge. The inclusive rate for each of the 3-day sessions will be \$57 at Williamsburg Inn and \$42 at Williamsburg Lodge, two in a room. For single accommodations the rate is \$63 at the Inn and \$48 at the Lodge. Early registration is suggested and should be accompanied by check for \$15 for each person (to be applied against total payment). Registrations and inquiries should be directed to Mrs. A. L. Rowe, Registrar, Williamsburg Garden Symposium, Goodwin building, Williamsburg, Va.

ROSE SOCIETY AWARDS.

City of New York, the new white large-flowered climber, was awarded the national gold medal of the American Rose Society at its recent convention at Washington, D. C. This is the highest award for a rose in the United States, and the recognition of City of New York was based on its universally fine performance in each of the fifteen districts of the American Rose Society during the past five years. The rose was originated by Mathias Tantau, Germany, but was introduced in this country by the Conard-Pyle Co. The rose previously to win the national gold medal was Peace, introduced by the same firm.

The new coral-peach rose, Fashion, was awarded the David Fuerstberg prize of \$100 "as the best new rose of American origin suitable to the American climate." The outstanding quality of this variety is its color. It is also rated highly for its vigorous growth and freedom from diseases. The rose is the creation of E. S. Boerner, director of research

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Golden Bark Dogwood Shrub	10c	15c
Cydonia Japonica, upright red.	8c	12c
Calycanthus Floridus, S.	3c	4c
Crape Myrtle, red.	12 1/4c	17 1/2c
Foraythia Suspensa	4c	5c
Hydrangea Peaseae	8c	10c
Hydrangea, Oak Leaf, Div.	6c	8c
Lilac Rothemagensis	7 1/2c	10c
Lilac, Old-fashioned Purple, Tr.	9c	12c
Spiraea Thunbergi	5c	7 1/2c
Spiraea Vanhouttei	3c	4c
Rhus Cotinoides, Div.	6c	8c
Japanese Flowering Snowball	10c	15c

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of Jackson & Perkins Co. Other roses that have won this award in recent years are the large-flowering climber, Doubleloons; the cerise-red hybrid tea, Charlotte Armstrong, and the salmon-pink Mary Margaret McBride.

The selection of the roses for these awards is based on reports from hundreds of members of the American Rose Society.

MARYLAND APPOINTEES.

The appointment of Dr. Gordon M. Cairns to be dean of agriculture in the University of Maryland is but one of several changes in the agricultural organization in the university. Dr. Cairns becomes the successor to Dr. Thomas B. Symons, who retired from the position in September.

Dr. James H. Gwin, now in the department of poultry husbandry, will become director of the agricultural extension service.

Dr. William B. Kemp, present director of the agricultural experiment station, will take on, in addition to his present work, the position of director of instruction for the college of agriculture.

Dr. Irvin C. Haut, now head of the department of horticulture, becomes assistant director of the agricultural experiment station and will succeed to the directorship upon the retirement of Dr. Kemp, June 30, 1951.

Dr. Ronald A. Bamford, who has been associate dean of the college of agriculture and head of the department of botany, becomes dean of the graduate school.

SALE of the former Kiyono Nursery properties in the Semmes, Ala., vicinity, by Edith P. McDade, Ruth Cline McDade and Grace Everest McDade, all of Chattanooga, Tenn., to Clint McDade, also of Chattanooga, was recorded in deeds filed in Probate court. Purchase prices totaling \$76,500 were shown by the deeds.

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Baltic Ivy, 2-yr., R.C.	6.00
English Box, 2 to 3 ins., T.	7.50
3 to 4 ins.	10.00
American Box, 3 to 4 ins.	7.50
4 to 6 ins.	10.00
6 to 8 ins.	15.00
Ilex Bullata, 4 to 6 ins., 2-yr. T.	15.00
5 to 8 ins., T.	20.00
Ilex Crenata, 4 to 6 ins., 2-yr. T.	15.00
6 to 8 ins., T.	20.00
Leucothoe Catesbaei, 6 to 8 ins., T	15.00

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Asiatic and Native Magnolias

By George Graves

Magnolias represent another example of the similarity of the floras native to eastern Asia and eastern North America. This similarity is evidenced not only in the kinds of plants common to the two areas but also in the climatic and growing conditions which allow most of the two floras to be interchanged. In the past, few American woody plants have been taken to the Orient, but gardens in eastern America have been enhanced by plants imported from the Far East. Often, as in the case of some of the magnolias, the route taken from Asia to America was by way of Europe, with some improvement in plants occurring along the way.

In the case of the magnolias, the importations or their hybrids seem to be more outstanding as plants for the garden, or nearly so. The native species are for the most part larger trees, among which are some attractive shade or avenue plants for conditions where magnolias are suited culturally.

Determining a suitable cultural location for a magnolia means finding a spot where the soil is fairly deep and has plenty of water-retentive properties, or preparing it to be that way. Magnolias are not swamp plants, but, at the same time, they do not thrive in gravelly places, especially when they are young. Old plants with far-flung root systems can withstand considerable drought, but they will weather such conditions better when they are grown under perpetual mulch. All of these particulars add up to the conclusion that magnolias thrive under the conditions found in open woodlands.

Magnolias have fleshy roots which make them somewhat difficult to transplant, especially in a bare-root condition. What happens when they are moved in autumn or even in early spring is that the easily injured roots are subject to rotting when they are forced to remain inactive in cold wet soil. On the other hand, plants which are shifted just before growth starts seem to begin anchoring themselves in the soil of their new locations and seldom give much trouble. In any case, reduction of the root system by pruning is to be avoided. Attempts at severe root-pruning of old, established plants to prepare them for shifting the following season have proved fatal. With plants of nursery sizes, those which are

carefully dug and balled and burlapped usually establish themselves readily enough. Digging of this kind seems necessary for moving the plants in autumn.

Probably the best known of the imported magnolias is *M. soulangeana*, the saucer magnolia. This hybrid of two Asiatic plants was bred long ago in France. Like one of its parents, *M. liliflora*, the saucer magnolia is seen most often as a large, open, spreading shrub, but, when given a minimum of training while young, it can become a presentable and reasonably vigorous tree. Perhaps the reason for its frequent shrubby state is the fact that it is grown from layers or from scions which are not really terminal in their make-up. Even so, attention to the early development of a single leader will promote a tree-like habit.

As with other Asiatic kinds, the saucer magnolia opens its large and showy blooms before the leaves unfold, which makes it possible to sell properly handled specimens in the bud or opening flower stage. These

flowers vary in color from variety to variety. The varieties seem to be confused in the trade, and there seems to be a need for standardization. Typical *M. soulangeana* has rose-colored flowers, and a number of named varieties are similar. In order to secure the best of the full range of variation, a few other varieties should be grown. *M. s. alba* has flowers which are more nearly white than are those of the type. *M. s. lennei* bears large, rather late blooms which are purple and crimson outside and white within. The blooms of *M. s. rubra*, or *M. s. rustica*, are more rosy-red in color. As stated before, these varieties are confused, and there is need to propagate from accurately labeled specimens to make sure of what is going to result.

The two parents of the hybrid saucer magnolia are sometimes found in cultivation. One such species is *M. liliflora nigra*, which has flowers that are dark purple on the outside and light purple within. It may be seen listed on occasion as *M. soulangeana*

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Apricot, 1 and 2-yr.
Peach, 1-yr.

Thurlof Weeping Willow,
5 to 6 ft., up to 2-in.

Lombardy Poplar, 5 to 6 ft., up to 2-in.

Arborvitae, Pyramidal; *Juniperus columnaris*, glauca, *ketelerii*, Hill's Dundee, up to 3 1/2 to 4 ft. Pfitzer Juniper, 15 to 18 and 18 to 24 ins. Austrian and Scotch Pine, heavily sheared, 4 to 5, 5 to 6 and 6 to 7 ft.

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nigra. Perhaps better known and more attractive is the other parent, *M. denudata*, which is often listed as *M. conspicua*, or *M. yulan*. While this gray-barked, open-headed tree seems to be as hardy as the saucer magnolia, its white blooms often are injured from cold in northern gardens because they open so early in the season. For an upstanding, 30-foot tree, this magnolia can be recommended. Its 6-inch fragrant flowers are showy before the leaves unfold.

A still earlier species is *M. stellata*, which, like other Asiatic natives, opens its blooms before the leaves. The star magnolia can grow to some fifteen feet in height, but its habit is shrublike and its constitution is rugged. Few specimens have reached that height and in most gardens even after a fair number of years the plant is seen as a medium-size shrub. Its relatively small blooms are borne in greater profusion than are those of *M. soulangeana*. They are many-petaled, white in color and fragrant. A variety has long been known in which pink coloring suffuses the outer surfaces of the petals. In recent years this pink feature has been accentuated in the garden variety named Waterlily, which has fuller, more fragrant flowers of a deeper pink coloring.

Two not-so-hardy Oriental species of small tree proportions display well the cone-like fruits of the whole group, from which cones the individual seeds hang by threads upon maturity. *M. salicifolia*, the anise magnolia, from Japan follows its white blooms with 2 to 3-inch rosy-pink cones from which scarlet seeds emerge. Also, the fragrant white blooms of *M. sieboldi* are followed by small crimson fruits, which are far smaller than the fruits of some other species, but which are mentioned because they are showy.

As for the seeds of the whole group, viability seems to be a relatively fleeting property. The reason seems to be the oily pulp in which the seeds are incased. This explains why experienced propagators clean magnolia seeds as soon as they are harvested.

Another Asiatic species, *M. kobus borealis*, is relatively hardy and thus may be planted somewhat to the north of areas where most of the others thrive. This is a vigorous tree which can reach a height of seventy feet. Its 5-inch white blooms open before the leaves. In nursery practice it has been much used as an understock for grafting the more popular kinds.

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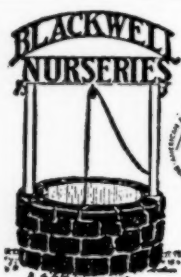
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3 to 4 ft.....	8.50
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nolias, much larger trees are encountered. The most attractive of the lot as far as shade tree planting is concerned is *M. acuminata*, or cucumber tree magnolia, as it is named from its fruits which show bright red seeds in late summer. This large deciduous tree grows up from a pyramidal form in youth to spread out its top in age to present a broadly pyramidal crown. Its pointed but rounded, pale green leaves are six to ten inches long. These features, together with a stout trunk, make the cucumber tree magnolia an attractive plant of regular outline. Its greenish flowers are not particularly showy, but they are fragrant. The fairly rare *Magnolia cordata* differs in having yellow blooms and broader leaves. As in other American magnolias, the flowers appear after the leaves. The cucumber tree magnolia is one of the few magnolias which have had street or shade tree use.

M. virginiana, sweet bay magnolia, varies from a shrub in the north to a 60-foot tree in the south. It also tends to be semievergreen in some places. It has somewhat the appearance of a broad-leaved evergreen when its green twigs are clothed with shining foliage. The small cup-shaped blooms, which appear in summer, are white and fragrant. The small red fruits show against the foliage in late summer.

An unusual but not too usable native tree is *M. macrophylla*, which is well named because its leaves can grow more than a yard long. Also, this 40-foot, broad-headed tree bears fragrant white flowers, which measure nearly a foot across. It is considered to be a limestone soil plant and is far harder than is generally supposed.

Even though it was planted in older gardens, *M. tripetala*, umbrella tree magnolia, seems better off in the woods of its native Allegheny mountains. For a native plant, this one has a most exotic appearance because of its dull, hairy leaves, which often measure up to two feet in length and are clustered on the ends of the branches. It is usually seen at maturity as an irregular 40-foot tree. Perhaps its most attractive feature is the rose-colored fruiting cone, some four inches in length. More recently it has been grown for use as an understock.

The relatively tender *M. grandiflora*, or bull bay magnolia, where it is at home in the southeastern United States may become a 100-foot tree of pyramidal outline. Although it is sometimes tried in the north, there is little hope for con-

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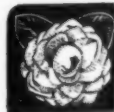
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tinued growth much north of Washington, D. C. Most northerners know it from the cut branches with shining evergreen leaves which come into the market for decorative purposes. Its fragrant white flowers are often eight inches across.

In Europe the bull bay magnolia is sometimes trained on walls, because the plant needs protection. In this country wall training is for ornament. A number of the magnolias might serve that purpose.

CLEANING SEEDS.

[Continued from page 14.]

Several handy devices have been developed by John Dean, agronomist at Ohio State University, which are especially good for extracting the seeds from the pods of leguminous plants. One consists of a curved surface which fits closely against a rotating drum. Both surfaces are covered with B. F. Goodrich Gripper-top conveyer belt. Pods can be fed continuously between these surfaces, where they are thoroughly crushed. This is followed by fanning to clean the seeds further.

Another device is composed of a continuous belt rotated around two cylinders so that the surface of the belt comes in contact with a drum about twenty inches in diameter. The drum rotates about 300 r.p.m. and has a ratio of about eight to one of the belt. The two surfaces which are in contact are composed of the Gripper-top conveyer belt similar to that of the other machine.

Pods can be fed continuously from the top of the machine, and the crushed material falls on a slanting board having a near-horizontal motion which is imparted by an eccentric rotating about 300 r.p.m. The material slides down an air shaft which blows away the lighter particles and leaves the clean seeds in a container at the bottom of the machine.

Studies on Fleshy Fruits.

Some studies have been made of methods of cleaning seeds of coto-neasters, junipers and viburnums. At first, the viburnum fruits were placed in water soon after gathering. After standing for a day or so, the pulp was separated from the seeds by rubbing the fruit over a screen by hand. This method did not clean the seeds well.

A better method of cleaning consists of the use of an electric mixer similar to those used at soda fountains. A mixture of the fresh fruit with water was placed in the container and stirred at high speed un-

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	Per 100	Per 1000		Per 100	Per 1000
Spiraea Vanhouttei.			Amur River North Privet.		
6 to 18 ins., C.....	\$ 3.00	\$ 30.00	6 to 12 ins., C.....	\$ 2.00	\$ 17.50
12 to 18 ins., br.....	6.00	50.00	12 to 18 ins., br.....	5.00	45.00
18 to 24 ins., br.....	15.00	140.00	18 to 24 ins., br.....	7.50	65.00
Spiraea Collosa Rosea.			2 to 3 ft., br.....	10.00	90.00
6 to 18 ins., S.....	3.00	25.00	Cornus Florida.		
18 to 24 ins., br.....	10.00	90.00	White Dogwood.		
Abelia Grandiflora.			6 to 12 ins.....	3.00	25.00
6 to 12 ins., C.....	10.00	90.00	12 to 18 ins.....	4.00	40.00
12 to 18 ins., br.....	15.00	140.00	18 to 24 ins.....	6.00	60.00
12 to 18 ins., br.....	25.00	240.00	18 to 24 ins., tr., br.....	15.00	140.00
18 to 24 ins., br.....	40.00	.....	2 to 3 ft., tr., br.....	25.00	.....
2 to 3 ft., br.....	60.00	.....	3 to 4 ft., tr., br.....	40.00	.....
Calycanthus Floridus.			4 to 6 ft., tr., br.....	75.00	.....
6 to 12 ins., S.....	2.00	20.00	Cornus Florida Rubra.		
12 to 18 ins., S.....	4.00	35.00	Red-flowering Dogwood.		
18 to 24 ins., S.....	7.50	60.00	18 to 24 ins., br.....	125.00	.....
Weigela Nana, Variegated.			2 to 3 ft., br.....	175.00	.....
12 to 18 ins., C.....	7.00	60.00	3 to 4 ft., br.....	300.00	.....
18 to 24 ins., C.....	10.00	90.00	Deutzia, Pink and White.		
Weigela Rosea.			6 to 18 ins., liners.....	3.00	25.00
6 to 18 ins., C.....	3.00	25.00	12 to 18 ins., br.....	4.00	40.00
12 to 18 ins., br.....	6.00	50.00	18 to 24 ins., br.....	6.00	60.00
18 to 24 ins., br.....	10.00	90.00	White Snowberry.		
Hydrangea Peegee.			12 to 18 ins., br.....	25.00	.....
6 to 12 ins., C.....	10.00	90.00	18 to 24 ins., br.....	40.00	.....
12 to 18 ins., br.....	15.00	.....	Mimosa Tree.		
18 to 24 ins., br.....	25.00	.....	2 to 3 ft.....	10.00	.....
2 to 3 ft., br.....	40.00	.....	3 to 4 ft.....	15.00	.....
Hydrangea Arborescens.			4 to 5 ft.....	30.00	.....
6 to 12 ins., S.....	6.00	50.00	5 to 6 ft., br.....	100.00	.....
12 to 18 ins.....	10.00	90.00	6 to 8 ft., br.....	150.00	.....
18 to 24 ins., br.....	15.00	.....	Amur River South Privet.		
2 to 3 ft.....	25.00	6 to 18 ins., S.....	.40	3.50
			18 to 24 ins., S.....	1.00	6.00
			18 to 24 ins., tr., br.....	2.00	15.00
			2 to 3 ft., tr., br.....	3.50	30.00

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BOX 125

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3 to 4 ft.....	3.00
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til the pulp was broken from the seeds. The mushy contents were then poured in a container of water and the lighter pulp was floated off, leaving the heavier seeds in the bottom. It was necessary to agitate the water, however, to do a better job of flotation and separation of the pulp and seeds. Because of the flat nature of most of the seeds, this method was preferred to screening. Screening of the mixture would be more adaptable for Viburnum dentatum, which has round seeds. The seeds of Viburnum dentatum had to be soaked in water for about a week before the fruit became loose enough to clean. Even then the mixer did not do a good job, and they had to be finished by screening. It was found that the fruit coat of most viburnum species was much easier to remove by the mixer if the harvest was delayed until after the first frost.

In order further to clean the seeds, they were dried and then processed through a commercial aspirator to remove the finer particles which were not removed by the flotation.

Several methods were used to remove the pulp from cotoneaster seeds. Initially, a laborious procedure of crushing the pulp of the fruit with a rolling pin was used. This not only crushed the pulp, but it also separated the several seeds which were usually bound firmly together in the fruit. This separation of the seeds is essential in the case of the cotoneaster because it was found that better than sixty per cent of all the seeds collected over a period of two seasons were empty endocarps (the hard outer coats). These seeds could be floated away with the pulp during the flotation process.

This method was discarded when it was found that the fresh seeds could be placed in the mixer as were the viburnums, and an excellent job was done of removing the pulp and separating the seeds. Crushing the fruit before using the mixer, however, still expedited the process. After flotation, separation and drying, an aspirator was used to remove any debris that was left.

For seeds having a tough outer coat, which is comparable to that of cotoneaster or crataegus, a Waring blender might be used. The sharp blades in the bottom of the mixer will ruin seeds having a coat of lesser strength. Before the pulp of any seeds are removed by this method, it is advisable to try a few of the fruits in question before your entire collection is risked. If in doubt as to which machine to use, it is far better to purchase a mixer such as is

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Pear, 1 and 2-yr., Dwarf and Standard.

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Sweet and Sour Cherry,
1 and 2-yr.

Quince, 2-yr.

Apricot, 2-yr.

Peach, 1-yr.

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<i>Tsuga Canadensis</i> , <i>Ilex Opaca</i> .	Per 100	Per 1000
6 to 9 ins., tr. xx.	\$ 9.00	\$ 80.00
9 to 12 ins., tr. xx.	13.00	120.00
12 to 15 ins., tr. xx.	16.00	150.00

<i>Abelia Grandiflora</i> , <i>Hydrangea Paniculata Grandiflora</i> .	Each	Each
6 to 12 ins., 1-yr., C.	7.00	65.00
12 to 18 ins., 1-yr., C.	11.00	100.00
18 to 24 ins., 2-yr., br.	15.00	...

<i>Cornus Florida</i> .	Each	Each
2 to 3 feet, well br.	\$0.20	
4 to 5 feet, well br.	.30	
4 to 5 feet, well br.	.45	

Native Shrubs and Evergreens

<i>Tsuga Canadensis</i> .	Per 100	Per 1000
3 to 6 ins., s.	\$0.75	\$ 6.00
6 to 9 ins., s.	1.50	10.00
9 to 12 ins., s.	2.50	20.00
12 to 18 ins., s.	4.00	35.00
18 to 24 ins., s.	6.00	55.00

<i>Ilex Opaca</i> , <i>Rhododendron Maximum</i> , <i>Kalmia Latifolia</i> .	Each	Each
3 to 6 ins., s.	2.00	15.00
6 to 9 ins., s.	3.00	25.00
9 to 12 ins., s.	4.00	35.00
12 to 18 ins., s.	5.00	45.00
18 to 24 ins., s.	6.50	60.00

<i>Kalmia Latifolia</i> , <i>Rhododendron Maximum</i> .	per 10	per 100
12 to 18 ins., heavy br.	\$0.20	\$0.15
18 to 24 ins., heavy br.	.25	.20

<i>Azalea Calendulacea</i> , <i>Azalea Nudiflora</i> .	Each	Each
12 to 18 ins., liners	.07	
12 to 18 ins., heavy br.	.12	.10
18 to 24 ins., heavy br.	.17	.15

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found at the soda fountain and play safe. Neither the mixer nor the blender can be recommended for any large-scale cleaning. For the small nursery, however, the mixer should be a good investment.

Recently, some of the fleshy juniper cones were cleaned in the mechanical mixer. It did not do a thorough job unless they were processed for a long time. By crushing the fruit first and then placing in the mixer, the seeds were fairly well separated. Much of the pulp and many of the empty seeds were floated off in water. Fibers were still adhering to some of the seeds, which could probably be further cleaned with the aspirator. It is not a good idea to pour off any floating berries before they are crushed because several seeds are in the fruit and some good ones might be lost if this is done.

Below are listed some of the types which may be handled in a depulping-flotation process as were the cotoneasters, junipers and viburnums: Berberis, barberry; shepherdia, buffalo berry; sambucus, elder; ilex, holly; lonicera, honeysuckle; gaylussacia, huckleberry; sorbus, mountain ash; Diospyros virginiana, common persimmon; Ligustrum vulgare, European privet; Rosa blanda, meadow rose; sassafras; amelanchier, serviceberry; Elaeagnus commutata, silverberry; symphoricarpos, snowberry; taxus, yew; celtis, hackberry; cornus, dogwood; crataegus, hawthorn; Elaeagnus angustifolia, Russian olive; juniperus, juniper; magnolia; nyssa, tupelo; parthenocissus, creeper, and rhamnus, buckthorn.

Some of these fruits may be of such tough consistency that crushing will be necessary as was done with the junipers. The condition of the seed coats may vary from year to year; so it would be advisable to run a sample of seeds through the mixer before committing the entire crop to this process.

The cleaning and processing of each type of seed presents a problem which may be slightly different than that of another. The important thing seems to be to adapt the method that gives you the greatest quantity of viable seeds in the shortest time with the least expenditure of effort and money.

1. Baldwin, H. E. Forest Tree Seed of the North Temperate Regions. 55-80.

2. Forest Service, Woody-Plant Seed Manual. U.S.D.A. Misc. Publ. 654.1-28.

3. Steavenson, H. A. The Hammer Mill as an Important Nursery Implement. Jour. For. 38:356-361. 1940.

4. Toumey, J. W., and C. F. Korstian. Seeding and Planting in the Practice of Forestry. 3rd Edition. 117-137. 1942.

SHADE TREES

	Each	Per 10
Ash, American White, 6 to 8 ft.	\$2.25	\$20.00
Ash, American White, 8 to 10 ft.	2.75	25.00
Ash, American White, 10 to 12 ft.	3.50	32.50
Catalpa bungei, 5 to 6 ft. stems	2.25	20.00
Catalpa speciosa, 6 to 8 ft.	1.50	12.50
Catalpa speciosa, 8 to 10 ft.	1.75	15.00
Elm, American, 6 to 8 ft. (\$130.00 per 100)	1.60	14.00
Elm, American, 8 to 10 ft. (\$100.00 per 100)	2.00	17.50
Elm, American, 10 to 12 ft.	2.50	22.50
Elm, Chinese, 6 to 8 ft.	1.10	10.00
Elm, Chinese, 8 to 10 ft.	1.60	14.00
Flowering Crab, eleyi, 3 to 4 ft.	.75	6.50
Flowering Crab, eleyi, 4 to 6 ft.	1.00	9.00
Gum, Sour, 6 to 8 ft.	2.50	22.50
Hackberry, 5 to 8 ft.	1.75	16.00
Hackberry, 6 to 8 ft.	2.50	22.50
Hackberry, 8 to 10 ft.	3.00	27.50
Linden, American, 8 to 10 ft.	3.00	27.50
Linden, American, 10 to 12 ft.	4.00	37.50
Locus, Honey, 6 to 6 ft.	2.00	17.50
Locus, Honey, 6 to 8 ft.	2.50	22.50
Maple, Norway, 6 to 6 ft.	1.75	15.00
Maple, Schwedler's, 6 to 6 ft.	2.75	25.00
Maple, Schwedler's, 6 to 8 ft.	3.75	35.00
Maple, Silver, 5 to 6 ft. (\$90.00 per 100)	1.10	10.00
Maple, Silver, 6 to 8 ft. (\$130.00 per 100)	1.60	14.00
Maple, Silver, 8 to 10 ft.	2.00	17.50
Oak, Willow and White, 6 to 8 ft.	3.25	30.00
Oak, Willow and White, 8 to 10 ft.	4.00	37.50
Oak, Willow and White, 10 to 12 ft.	5.00	47.50
Plane Tree, Oriental, 6 to 8 ft.	2.25	20.00
Plane Tree, Oriental, 8 to 10 ft.	2.75	25.00
Poplar, Lombardy, 6 to 8 ft. (\$65.00 per 100)	.85	7.50
Poplar, Lombardy, 8 to 10 ft. (\$85.00 per 100)	1.20	10.00
Poplar, bolleana, 6 to 8 ft.	1.60	14.00
Texas Umbrella, 3 to 4 ft. (\$65.00 per 100)	.85	7.50
Texas Umbrella, 4 to 5 ft. (\$95.00 per 100)	1.35	12.00
Texas Umbrella, 5 to 6 ft.	1.75	15.00

NUT TREES

	Per 10	Per 100
Black Walnut, 6 to 8 ft.	\$12.50	\$115.00
Black Walnut, 8 to 10 ft.	16.50	150.00
Papershell Pecan, 4 to 6 ft.	12.50	115.00
Papershell Pecan, 6 to 7 ft.	16.50	145.00
Papershell Pecan, 7 to 8 ft.	18.00	...
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Taxus cuspidata capitata		
Taxus bleckii		
American Pyramidal Arborvitae		
Globe Arborvitae		Rhododendrons

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New Books and Bulletins

REVISE LANDSCAPE BOOK.

"How to Landscape Your Grounds," by Loyal R. Johnson, was first published in 1941, containing information and guidance for the small property owner who must plant his own grounds. It also contains practical planting plans and keys thereto for all sections of the country as prepared by eight landscape architects.

The second edition, just published by De La Mare Garden Books, at \$3.50, has been enlarged by forty pages, thoroughly revised and brought up to date. It now contains 272 pages and 152 illustrations and includes new sections on planting dry stone walls and on lawns and lawn grasses.

Also included are two new chapters on planting and pruning various types of shrubs and trees, and on improving garden soil, with information on fertilizers, lime, mulches and composts.

Two new plans for ranch-type homes found in the middle Atlantic states have been added to the planting plans. Lists of shrubs, acid soil plants, trees and vines have been retained and brought up to date.

CHEMICAL WEED KILLERS.

The usefulness of chemical weed killers has been tested by some nurserymen for their laborsaving value, and the same procedure is being followed where maintenance of plantings is important, though the types of weed killers and their application are, of course, different. Primarily concerned with keeping down weeds and bush in the arboretum, the November 3 issue of *Arnoldia*, published by the Arnold Arboretum, Jamaica Plain, Mass., is devoted to a discussion of "Killing Woody Plants with Chemicals," by Dr. Donald Wyman. He presents comparisons of the different chemical products employed, which will be instructive to nurserymen interested in this subject.

LILY BUYERS' GUIDE.

Publication of an 8-page lily dealer directory, the "Lily Buyers' Guide," listing over 400 lily species and varieties carried by eighty-four dealers in the United States and Canada, is announced by the North American Lily Society. The booklet, already in the hands of society mem-

bers, is available to others for 25 cents per copy. Orders may be addressed to Dr. Robert R. Rappleye, department of botany, University of Maryland, College Park, Md.

Persons knowing of lily sources not listed in the directory are asked to send them to Dr. Rappleye so that they may be included in periodic supplements to be issued from time to time.

HILLING'S JUBILEE.

The firm of T. Hilling & Co., Chobham, Woking, England, well known, not only for its extensive list of nursery stock sold at wholesale, but also for its large collection of species and old-fashioned varieties of roses, this year celebrates its silver jubilee. The twenty-fifth anniversary of its founding is commemorated by the issuance of an illustrated booklet describing the

firm's growth and some of the more interesting trees, shrubs and other plants cultivated.

This year is issued also the second edition of its booklet, "Roses as Flowering Shrubs," of sixty-four pages and cover, describing the above-mentioned roses in its collection, nearly 400, many of which are illustrated.

Besides a separate price list of the roses, T. Hilling & Co. issue a wholesale catalog of 128 pages and cover, 5x8 inches, listing the extensive assortment of ornamental trees and shrubs, conifers, fruit trees, alpine and herbaceous plants. The firm owns 300 acres, of which 200 are given over currently to nursery stock.

BULLETINS RECEIVED.

"The Morgan Soil Testing System" is the title of the latest bulletin, No. 541, published by the Connecticut agricultural experiment station. Authored by Dr. H. A. Lunt, Dr. C. L. W. Swanson and H. G. M.

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Jacobson, all of the station's soils department, it is a revision and extension of previous publications on soil testing. Modern methods of soil testing were first developed by Dr. M. F. Morgan, late head of the soils department, in 1927. Since his original research, Dr. Morgan made numerous additions and improvements to the system, and other workers in the field have also made valuable contributions. All of these advances are included in the new publications.

Selections, planting and care of certain tested species of woody vines are presented in "Ornamental Woody Vines for the Southern Great Plains," farmers' bulletin No. 2015, written by E. W. Johnson, silviculturist, and published by the United States Department of Agriculture. All vine species discussed in the leaflet were included in a plant material research project initiated at the U. S. D. A. southern great plains field station, Woodward, Okla., and tested further during cooperative experimental plantings in that area, which has alkaline soils, low precipitation and quick changes in temperature. A map of the southern great plains region and twelve pictures showing the practical and decorative uses of woody vines are included in the 24-page booklet.

Recommendations for construction of contour fencing are succinctly given in "Contour Fencing," circular 5, published by the Ohio agricultural experiment station, at Wooster, O. Written by Harris M. Gitlin and Walter H. Pomerene, the 12-page pamphlet describes results obtained during a 3-year testing period at the U. S. Soil Conservation Service's research station, near Coshocton, O., where experiments were made to determine the best materials, proper spacing of posts, different tensions and various radii of curvature. Diagrams and charts are included to illustrate methods used and results obtained.

The fact that good insect and disease control may be had with considerably less than the number of sprays usually applied is emphasized in bulletin 540, "Further Study of Stickers and Reduced Apply Spray Programs," published by the Connecticut agricultural experiment station, New Haven. The 34-page bulletin is written by Philip Garman, associate entomologist at the station, who tells of reduced spraying schedules which proved effective when efficiency mixes were used, with tetramethylthiuram disulphide giving the most consistent performance and Tersan-lead arsenate and Fermate-lead arsenate proving sat-



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isfactory when compared to stand-
ard sulphur-lead arsenate sprays.

Stencil bulletin 9 was recently
published by the University of Wis-
consin, Madison, as a report of
studies made on oak wilt disease in
Wisconsin. The Nekoosa Edwards
Paper Co., at Port Edwards, provid-
ed land, equipment and labor, and
the university cooperated with the
state conservation department and
the United States Department of
Agriculture in determining the
cause, symptoms, transmission, most
susceptible victims and control of
the disease.

Natural factors which affect the
Japanese beetle population are men-
tioned briefly in circular No. 4, "Dis-
tribution and Control of the Japa-
nese Beetle in Ohio," recently pub-
lished by the Ohio agricultural ex-
periment station, Wooster, O. Writ-
ten by Joseph B. Polivka, entomolo-
gist at the station, the 16-page
leaflet describes the Japanese beetle,
presents its life history, depicts the
damage done by the insect and men-
tions measures for its control. Be-
sides pictures and diagrams showing
the beetle and its destructive work,
a list of the beetle finds in various
counties within Ohio is given.

Information on growing straw-
berries, from selecting the site to
cultivating the plants, is given by
John C. Snyder in revised bulletin
No. 246, "Strawberry Growing in
Washington," published by the ex-
tension service of the State College
of Washington, Pullman. Actual
planting procedures, the hill and
matted row planting systems used
in the state and the proper way to
pick strawberries are but a few of
the strawberry-growing features
shown in numerous pictures
throughout the 50-page booklet.
Charts and diagrams further illus-
trate the recommendations that the
author makes for anyone who wants
to know about fertilizing the new
planting, rotating the crops or con-
trolling the various insects.

Properly adjusted plows are the
required equipment of all agricul-
tural workers and can be easily
maintained, according to circular
16, "Plows and Plowing," published
by the agricultural extension service
of the University of Wisconsin,
Madison. To do the best work with
the least draft, a plow should pull
straight ahead from its center of
draft, and this pamphlet tells of the
most effective hitch adjustments to
use in eliminating troublesome side
draft, slipping wheels and excessive
land side heel clearance. Pictures
and line drawings are included in
the 8-page pamphlet on plow care.

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"Plans for Farm Building and Livestock Equipment," circular 666, published by the extension service of the University of Illinois, Urbana, offers construction suggestions for any kind of farm building, from hog houses to wooden gates and fences. Line drawings show the numerous tested plans which may be ordered from the department of agricultural engineering at the university. Advocating a long-time program for building construction, maintenance and remodeling, the 20-page bulletin lists the purposes for which each building will be used and offers other sources from which farm planning and construction help may be obtained.

Reforestation requirements, purposes and methods applied in Minnesota, Wisconsin and Michigan are the subjects of a 171-page booklet, "Forest Plantations in the Lake States," bulletin No. 1010, published by the United States Department of Agriculture and sold for 45 cents by the Superintendent of Documents, U. S. Government Printing Office, Washington, 25, D. C. Climatic maps of the regions discussed, tables listing the areas planted and classification of stock suitable for the destitute sites combine with numerous miscellaneous pictures of plantings and planting equipment to illustrate the reforestation plan written by Paul O. Rudolf, forester at the Lake States forest experiment station, University Farm, St. Paul, Minn.

SAN JOAQUIN MEETING.

Thirty-five persons attended the dinner meeting of the San Joaquin Valley chapter of the California Association of Nurserymen, held at the Yturri hotel, Fresno, October 19. Among the guests were Virginia and Mike Caglia, relatives of Andrew Caglia, Andy's Nursery, Fresno; Elmer Merz, Sacramento, executive secretary of the California Association of Nurserymen, and Walter Tecklenburg, Teck's Nursery, Lodi, treasurer of the state organization.

Chapter President Virgil Cripe, Del Rancho Fortuna, McFarland, presided, and Director Willis Stribling, Stribling's Nurseries, Merced, reported on the state convention held September 12 to 14 at Santa Cruz.

In telling of the activities of the state offices, Mr. Merz outlined the basic functions of the association as follows: Watching and lobbying for legislation pertinent to nurserymen; acting as a clearinghouse for problems of the trade; sending monthly information to member nurseries,

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and doing everything and anything that benefits the nursery industry as a whole. He told of recent advances made toward nurseries' requiring qualification by examination prior to their receiving new nursery licenses.

Sierra Nursery & Landscape Co., Bakersfield, was accepted as a new member. Individual members representing the firm are Michale J. Lettiere and Edward E. Pieper.

Members voted to hold long and short monthly sessions, with a certain time during each meeting to be set aside for members to exchange scarce or surplus merchandise.

Committees heads for the 1951 convention had met prior to the session, and they announced that their report would be given at the November 16 meeting, at Merced.

Ivan L. Stribling, Sec'y.

LOS ANGELES CHAPTER.

The regular meeting of the Los Angeles chapter of the California Association of Nurserymen was held at the Alhambra Y.M.C.A., October 18.

John Van Barnevelt, of California Roses, Inc., introduced his V. A. class from Excelsior high school, and Lynn Mossholder, treasurer, gave his annual report showing a balance of \$477.81. He said that a labor relations fund was still kept in a separate account. Committee reports were called for, and all committeemen told of progress.

The meeting was then turned over to David Cunningham, Descanso Distributors, Inc., program chairman. He first introduced V. D. Hardwick, Jr., who spoke on sales and service audits and sales systems. The next speaker, Mr. McConnell, of the social security board, spoke at length and led a discussion on the new regulations demanded from nurserymen by the recently amended social security act.

Robert Weidner, Sec'y.

HEADS GRASSHOPPER CONTROL.

The important cooperative grasshopper, Mormon cricket and chinch bug control programs of the United States Department of Agriculture came under new leadership November 1, when Paul A. Hoidale, former leader of the bureau's division of Mexican fruit fly control, succeeded Dr. Claude Wakeland, with headquarters at Denver, Colo.

Upon relinquishing his administrative duties as division leader for reasons of health, Dr. Wakeland will be chiefly concerned with bring-

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7 to 10 mm.....	7.00	65.00
8 to 12 mm.....	8.00	75.00

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Prices on application.

ing together and evaluating information on the development and evolution of organized control and on the effects of parasites, diseases and other natural control factors on grasshoppers, Mormon crickets and chinch bugs.

CONIFERS HELD IN STORAGE.

In the spring many nurserymen hold planting stock in cold storage to keep it dormant pending shipment or transplanting. The effects of such storage on first-year nursery survival and growth were shown by an experiment conducted at Hugo Sauer nursery, Rhineland, Wis., in which jack pine, red pine, white pine and white spruce trees were lifted May 3 and stored at 50 degrees for 0, 1, 2, 3, 4 and 5 weeks, respectively, before transplanting May 3, 10, 17, 24, 31 and June 7. Another test involved lifting and immediately transplanting trees on the dates above mentioned. These tests are reported by Joseph H. Stoeckler, forester at the Lake States forest experiment station, University Farm, St. Paul, Minn., in technical notes No. 343.

First-year survivals were ninety-five per cent or higher for all of the three pine species, whether stored for one or five weeks. White spruce dropped to eighty-one per cent after five weeks' storage and had begun to drop off (ninety-three per cent) after four weeks. All trees of the four species lifted and transplanted the same day, even though in a succulent stage in the late transplantings, survived ninety-five per cent or higher.

Nursery survival, however, does not tell the entire story. Prolonged cold storage reduces vigor and size of plants because they lose some of the best growing weather in late spring and early summer. Such loss in size and its resulting higher cull per cent is serious in conifers left in the transplant beds for only one year, when every week of additional growing weather is important. For stock left in transplant beds for two years, it is of less importance. The loss in weight from five weeks' cold storage ran from twenty to forty-two per cent. It was greatest in case of jack pine, which starts growth early in spring.

It appears that late transplanting with or without cold storage has an adverse effect on growth, and that it is accentuated by long storage.

ALBERT J. RESTANI has filed notice that he is operating Restani Nursery, 1420 Wayland street, San Francisco, Calif.

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If you have never tried our stock, give us a trial order.

John Holmason & Sons, Props.

Pricing Stock and Landscape Service

By Harold H. Clegg

Some people contend that there is nothing to be said on the subject of pricing in connection with the nursery industry because the efficiency of each individual business dictates the price tag. What I think needs to be done is to discuss prices in relation to costs. How to know your costs is the first step if you want to talk about prices. It is a sad sack who knows the price of everything and the cost of nothing.

More nurseries are, in the face of inflation, attempting to make a serious study of their costs. Some nurseries admit that their prices are based on the catalogs of their competitors. Other nurseries sell at a price so many times the cost to them had they bought in the stock. A small nursery such as my own can make a cost analysis of what it costs to produce per plant per year without spending much time. By doing this last winter when time was not the essence of success, I arrived at a basis for what the price should be on any item I can grow during the year. The analysis took into consideration losses of the year, since only survivors were counted in the year-end inventory. Any nursery can use this simple procedure and at least get a rough basis for pricing. You can multiply the years necessary for growing on different sizes of different varieties and get a little closer to good pricing than you can by most other methods which are simple and inexpensive.

In order to keep up with inflation, however, this analysis must be repeated every year so as to keep up with the factors which are changing your costs of operation. Over an extended period of years you will have the opportunity to observe which varieties, separately considered, are exceeding or lagging behind the rate of growth which you originally estimated them to attain each year. You may discover that taxus plants are growing as rapidly for you as junipers and be able to make a price correction in favor of your customer.

The salient feature of cost estimating is not the fear of overcharging the customer, at least in the nursery business. Judging from business failures, lack of knowledge by nurserymen of their costs has produced a price structure which is too low on an average. The trend has been to overprice scarce items and to sell varieties in surplus at below esti-

mated cost. The hazard there to the nurseryman is that his estimate of his cost is based on someone else's figures. Take time out to figure your overhead if you want to stay in business. If your business is limited by climate to a few months of the year, you must charge your customer a price to cover your overhead over 12-month periods. You should keep alert to extending your season and to increasing your efficiency in all ways possible. But never hope to get by if figures show you are not exceeding your costs.

A one-man nursery has met the seasonal challenge of his business by public hauling with his dump truck when he could spare the time from his place of business. The overhead on his truck is more than being met by his off-season earnings. He has been successful in a small way.

Take a lesson from the nursery which was at one time large and successful. It became careless of its overhead. It is now irreparably on the downgrade. Don't look in any particular direction for this nursery. There is at least one in every state. There are also well established nurseries in every area which have been

and still are making money. They have sold materials at a good profit during the postwar years because they produced most of their stock in trade with labor and other expenses at half those prevailing today. But unless these nurseries keep costs, inflation will not only catch up with them, but engulf them.

The pricing of services offered by landscape nurseries is, in my opinion, much more complicated, but involves the same principles. The usual stock in trade, known as supplies in most inventories, has often been priced before it becomes listed in your catalog. I have found that freight increases in the past few years have eaten up the profit margin on a number of items, and where normal leakage is experienced, a loss follows carrying the item in stock. Handling supplies is part of the service in landscape service, but it is as dangerous to handle merchandise of this nature as it is to produce plant materials on which the growing costs prove to be higher than the prices in your catalog.

It has been the experience of most, if not all, landscape nurseries, that

[Concluded on page 53.]

WANT ADS

Help and Situation Wanted and For Sale advertisements.

Display: \$3.00 per inch, each insertion.

Lines: 25¢ line; minimum order \$2.00

SALES OPPORTUNITY

Earned by C. G. G., Jr. the week of Oct. 9, 1950—\$193.80
 Earned by E. A. W. the week of Oct. 9, 1950—179.69
 Earned by H. B. C. the week of Oct. 9, 1950—128.56
 Earned by J. N. C. the week of Oct. 9, 1950—125.96
 Earned by J. R. P. the week of Oct. 9, 1950—128.55
 Earned by B. G. S. his first eight working days with the company—199.68

These are actual earnings on incentive basis paid by company.

QUALIFICATIONS:

1. Must be able to pass rigid character investigation.
2. Must be willing to accept thorough training program.
3. Must have car.

If interested, address Box 767, care of American Nurseryman. State qualifications and other pertinent information. YOUR INQUIRY WILL BE KEPT CONFIDENTIAL.

HELP WANTED

Landscape foreman for housing project and nursery operations. Unusual opening for aggressive man. Opportunity for part interest to right party. Permanent. Near Baltimore, Md. State age, experience, etc. Address Box 752, care of American Nurseryman.

WANTED—Working foreman for small but progressive, well equipped and fast-growing wholesale nursery, located in southern New York state. Good opportunity to advance for the right man. House furnished. Please state experience, salary expected, etc. Address Box 765, care of American Nurseryman.

FOR SALE

Northern Nut Tree Nursery.

Chance for man with some capital to step into a going enterprise. 7000 customers, 20,000 on mailing list. Good supply of stocks and grafted trees. Write for particulars. Address Box 763, care of American Nurseryman.

FOR SALE—\$10,000.00, total price, actual wholesale inventory. Grossed \$35,000.00 in 1949. 1½-acre growing ground; 8-room modern house; large, roofed lath house and storage building; total rent, \$60.00 a month; located in fastest-growing city in the U. S. Ralph Hunn, Nurseryman, 1031 Sunset Rd., Albuquerque, N. M.

Books for Christmas Gifts

Order Early to Insure Delivery by Christmas.

Nursery Manual, by L. H. Bailey. Describes methods of propagation and lists plants with practice for each. 470p., revised ed. (1920). \$5.00

Cultivated Conifers, by L. H. Bailey. Systematic record of 1000 species and varieties. Discusses culture, propagation and uses. 404p. (1933). \$10.00

Propagation of Horticultural Plants, by G. W. Adriance and F. R. Brison. Covers methods of propagation, including bulbs, layerage, cuttage, budding and grafting. 314 p. (1939). \$3.25

Handbook of Fertilizers, by A. F. Gustafson. Source, composition, effects and application of commercial fertilizers. 172 p., revised edition. (1944) \$2.00

Propagation of Plants, by M. G. Kains and L. M. McQueston. Reference book for propagators in nursery and greenhouse. 637 p., 375 illus., revised ed. (1942).....\$4.00

65 Practical Garden Plans, by John Elliott. For crowded areas in large cities, back yards, penthouses, outdoor living and dining rooms, etc. A wide range of plans applicable to many conditions. 48 p. Paper bound. (1950).....\$1.00

Azaleas: Kinds and Culture, by H. Harold Hume. Chapters include propagating, soils, planting, culture and care, feeding, pruning, azaleas as pot plants, greenhouse culture, insects and diseases. 63 black and white illus.; 9 in full color. 200 pages. (1948).....\$4.00

Diseases and Pests of Ornamental Plants, by Dr. Bernard Dodge and W. L. Rickett. Besides general chapters on diseases, insects and control measures, describes pests affecting some 600 species of plants in alphabetical order. 638 p. Illus. Revised edition (1948).....\$6.00

How to Beautify and Improve Your Home Ground, by Henry B. Aul. Provides plans, sketches, arrangements, terrace ideas, work and play centers, vegetable, flower, shrub and tree plantings. Modern ideas. 155 plans, drawings and illus. 320 p. (1949).....\$3.50

The Grafter's Handbook, by R. J. Garner. Information on almost every known method of grafting. Describes seeding and vegetative propagation of rootstocks, handling of scion wood, choice and use of tools. 24 p. of photographs. Many line drawings. 223 p. (1949). \$4.00

Shrubs and Vines for American Gardens, by Dr. Donald Wyman. Planting list guide for florists and nurserymen. Recommends about 1,100 species and varieties, with a secondary list of 1,700 for consideration. Gives some 800 blooming dates in sequence. Colored maps show hardiness zones of U. S. and Canada. 100 halftones. (1949)\$7.50

Manual of Cultivated Trees and Shrubs, by Alfred Rehder. Invaluable handbook, completely revised and enlarged. 1000 p. (1940).....\$12.00

Roses of the World in Color, by J. Horace McFarland. Guide to varieties, with cultural data. 296 p., 283 illus. in color. (1947).....\$5.00

Make Your Own Merry Christmas, by Anne Wertsner. Decorative ideas for using readily obtainable materials. 112 p., illus. (1946).....\$2.00

Maintenance of Shade and Ornamental Trees and Shrubs, by P. P. Pirone. Up-to-date, original and comprehensive—on pruning, surgery, pest control and other care. 436 p. (1948).....\$6.50

Plant Disease Handbook, by Cynthia Westcott. Accurate detection of diseases caused by bacteria, fungi, viruses, nematodes and nutrient deficiencies. Trees, shrubs, vines, flowers and vegetables included. 746 p. illus. (1950).....\$7.50

How to Increase Plants, by A. C. Hottes. Tells how to multiply plants by the most suitable method of propagation. Discusses seeds, cuttings, bulbs, grafting, fruit stocks, annuals, perennials, conifers, orchids, ferns, roses, trees and shrubs. (1949).....\$3.00

The Book of Shrubs, by Alfred C. Hottes. Tells how and when to plant, prune and spray and gives various lists of shrubs for many uses. Covers propagation, transplanting, pruning, soil requirements, etc. 438 p. Fourth edition. (1942)\$4.00

Planting Design, by Florence B. Robinson. Modern and practical treatment of theories of landscape composition. Chapters cover color theory, use of color, texture, mass grouping, planting about buildings and public plantings. 215 p. Illustrated by sketches. (1940).....\$3.00

Tree Experts' Manual, by Richard R. Fenska. Reference book on diagnosis of tree troubles, fertilizing, transplanting, pruning, surgery, diseases, insects, spray materials, etc.—handy information for daily operations of commercial tree expert. 192 p., 65 illus. (1943).....\$5.00

The Pruning Book, by Gustav L. Wittrock. Gives practical information. Root pruning, top pruning, hedge pruning and pruning in relation to flower-bearing habits of plants, with chapters on plants as well as fruit bearing trees and evergreens. Illus. (1948).....\$3.00

Manual of Cultivated Plants, by L. H. Bailey. Revised edition, greatly expanded and up to date. Means of identification of fruits, grains, grasses, vegetables, greenhouse plants, ornamental shrubs, plants and garden flowers, with explanation of more than 1,000 botanical terms. 1,116 p. (1949).....\$17.50

AMERICAN NURSERYMAN

343 S. Dearborn St., Chicago 4

CLASSIFIED ADS

Rate: 25 cents per line, each insertion.

Minimum order, \$2.00

AZALEAS

AZALEAS.
Hinodagiri and other varieties, including Kaempferi and Glenn Dale Hybrids. Nice, bushy plants. Prices of Hinodagiri and most Kurumes, packing additional:

8 to 10 ins.	Per 100
10 to 12 ins.	\$ 90.00
12 to 15 ins.	115.00
15 to 18 ins.	150.00

Add 10c per plant for burlap wrapping.
Send for complete list of Azaleas, Broad-leaved Evergreens, Shrubs, Trees, etc.

TANKARD NURSERIES
Exmore, Virginia
AZALEA ROOTED CUTTINGS.
Hinodagiri, Coral Bells, Pink Pearl, Sweet Briar, Amoenia, Flame, \$6.00 per 100, \$50.00 per 1000.
Hino-Crimson, \$10.00 per 100, \$85.00 per 1000.

JOHN WIGMORE
Norman Ave. at Cambridge Station
Riverside Park, Riverside, N. J.

HINODAGIRI.
Extra-fine, well branched, heavily budded, field-grown; often sheared. Choice, shapely specimens for forcing and landscaping, 16 to 18 ins., \$1.95; 14 to 16 ins., \$1.75; 12 to 14 ins., \$1.50; 10 to 12 ins., \$1.00; 8 to 10 ins. in 4-in. pots, 50c. In truck and carlots. Sunberr Azaleas. **FRIERSON'S FLOWERS** Denmark, S. C.

BERRY PLANTS

Strawberry Plants, double-inspected. Aroma, Blakemore, Klommore, Dunlap, Missionary and Robinson, \$5.00 per 1000. Everbearing Streamliner and Superfection, \$12.50 per 1000. Gem, \$10.00 per 1000. Progressive, \$8.00 per 1000.

TOM RAMSEY
Harrison, Tenn.

Thornless Boysenberry tip plants. Per 1000
ready to ship now.....\$22.50
Blakemore Strawberry plants..... 3.50
5000 to 10,000 everbearing tree
Blackberry plants..... 65.00
R. A. BODIFORD & SON NURSERY
Rt. 2, Box 89 Springville, Ala.

EVERBEARING STRAWBERRIES.
All the newest and best varieties. Fine, heavy-rooted, healthy plants.

Write for 1950 price list.
McNEAL BERRY NURSERY
Hamilton, Mont.

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HOLLAND-GROWN BULBS.
DARWIN TULIPS, 11 to 12 cm., \$5.00 per 100. **Bleu Aimable** (blue), **La Tulipe Noire** (brownish-black), **William Pitt** (red), **Helen Eakin** (white), **Rose Copland** (rose), **Sunkist** (yellow), **Pride of Haarlem** (red), **Afterglow** (apricot), **Barlagon** (red), **Yellow Giant** (yellow), **William Copland** (lavender), **Prunus** (pink).

HYACINTHS, 16 to 17 cm., \$12.00 per 100. **Gertrude** (pink), **L'Innocence** (white), **Bismarck** (blue), **City of Haarlem** (yellow). **King of the Violets** (purple).

CROCUS, 7 to 8 cm., \$2.00 per 100. **King of the Blues** (blue), **Golden Yellow** (yellow), **Striped Beauty** (white and blue), **King of the Whites** (white).

MUSCARI (Grape Hyacinth), 7 to 8 cm., \$2.00 per 100.

DUTCH IRIS, \$5.00 per 100. **Yellow Queen** (yellow), 8 to 9 cm.; **Excelsior** (white), 7 to 8 cm.

WEDGWOOD IRIS, 9 to 10 cm., \$5.00 per 100.

DAFFODILS (Rounds), **King Alfred**, \$6.00 per 100.

BENTON COUNTY NURSERY CO., Inc.
Rogers, Ark.

SPECIAL AMERICAN-GROWN DUTCH IRIS BULBS.

Offered subject to prior sale.

Per 1000 6 to 7 7 to 8 8 to 9 9 to 10 10 up

Wedgwood . 7.20 19.50 16.00 25.50 32.00

Mixed . 9.50 14.40 20.00 25.50 30.10

Minimum order 500 of a variety and size.

F.O.B. Julian, N. C. Cash or C.O.D.

NORTH STATE NURSERY CO.
Julian, North Carolina

HARDY NORTHERN-GROWN LILY BULBS.

New, rare, scarce and unusual as well as standard varieties.

New wholesale list now ready.

J. HENDRIKS, Grower, Portage, Mich.

DOUBLE TIGER LILIES.

4 to 6 ins., \$10.00 per 100; \$90.00 per 1000.

THE EVERGREEN NURSERIES, Lowell, Ind.

Per 1000
Blue Grape Hyacinths, 6 to 7 cm. \$ 6.00
Atamasco Lilies 20.00
Yellow Dog's-tooth Violet.
Blue Hepatica 40.00

MRS. ETHEL HARMON
R. 5 Saluda, S. C.

DAHLIA ROOTS.
We grow many acres of standard varieties. Write today for wholesale price list.

PAYNE DAHLIA FARMS
Route 5, Kansas City, 3, Kan.

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CAMELLIAS.
SPECIAL PRICES.
On mixed X varieties, unlabeled, such as Alba Plena, Cameo Pink, Chandleri Elegans, Prof. Sargent, 3 to 12 ins., 20c each; 12 to 18 ins., 24c each. Minimum order \$25.00. Remittance with order.

NATIONAL NURSERIES
Dept. A, Biloxi, Miss.

Brunched field-grown Pink Perfection liners, 12 to 18 ins., \$60.00 per 100. Debutante, Rose Dawn, etc. Heavy bed-grown.

SIMSON FLORAL GARDENS, Semmes, Ala.

The Trade's Buying Guide—
The American Nurseryman Ads.

EVERGREENS

Arborvitae Per 10 Per 100 Per 1000
American, 4 to 6 ins., X, \$2.25 \$13.50 \$120.00
4 to 8 ins., X, 2.35 15.00
Nigra, 4 to 6 ins., X, 2.25 13.50 120.00
6 to 8 ins., X, 3.00 18.50

Elegantissima.

4 to 6 ins., X, 2.75 16.50 155.00

6 to 8 ins., X, 3.00 18.50

Globe, 4 to 6 ins., X, 2.00 15.00 145.00

6 to 8 ins., X, 2.50 16.50 155.00

Pyramidal, 4 to 6 ins., X, 2.50 16.50 155.00

Heavy, 6 to 8 ins., X, 3.50 20.00 185.00

Heavy, 8 to 10 ins., X, 6.50 25.00

Chinese, 2-yr. edigs., 3.00 25.00

Chinese Compact, 2-yr. edigs., 3.00 25.00

Barberry, Juliana, Per 100 Per 1000

4 to 6 ins., X, \$20.00

6 to 8 ins., X, 27.50

Boxwood, Old English, dwarf, 15.00 \$140.00

2-yr., T., 4 to 6 ins., 15.00

Juniperus depressa plumosa (Andorra), 4 to 6 ins., X, 16.50 150.00

6 to 8 ins., X, 18.50

Juniperus hetzi, Hetzi' blue, 18.00

Juniper, 4 to 6 ins., X, 20.00

6 to 8 ins., X, 17.50

Pieris japonica, 4 to 6 ins., X, 8.00

Pyracantha lalandi, rooted cuttings, 8.00

Taxus baccata (English upright Yew), 4 to 6 ins., X, 15.00 145.00

6 to 8 ins., X, 18.50 175.00

8 to 10 ins., X, 22.50 200.00

10 to 12 ins., X, 25.00 225.00

Taxus cuspidata (Jap. spreading Yew), 4 to 6 ins., X, 15.00 145.00

6 to 8 ins., X, 18.50

Taxus cuspidata nana, 18.50

4 to 6 ins., X, 15.00

Write for our complete list.

ESHAM'S NURSERIES Frankford, Del.

LINING-OUT STOCK.

POTTED EVERGREENS. Per 100

Variety and height

Juniperus depressa plumosa, 6 to 8 ins., \$17.50

Juniperus excelsa stricta, 6 to 8 ins., 17.50

Juniperus hetzi, 6 to 8 ins., 20.00

Juniperus hibernica, 6 to 8 ins., 17.50

Juniperus pfitzeriana, 8 to 10 ins., 30.00

Juniperus sabina, 6 to 8 ins., 17.50

Taxus cuspidata, 6 to 8 ins., 22.50

Taxus hicksii, 6 to 8 ins., 25.00

Thuja pyramidalis, 8 to 10 ins., 22.50

Retinospora plumosa aurea, 10 to 12 ins., 22.50

Packing without cost when cash accompanies order.

THE HOLLANDIA GARDENS, Inc. South Vienna, O.

LINERS, SPRING DELIVERY.

Each

Viburnum burkwoodi, 4 to 6 ins., \$0.12

Viburnum burkwoodi, 6 to 8 ins., .17

Viburnum burkwoodi, 8 to 10 ins., .21

Daphne cneorum12

Daphne odora15

Juniperus tamaricifolia, 8 to 4 ins., .10

Juniperus tamaricifolia, 4 to 6 ins., .15

Juniperus tamaricifolia, 6 to 8 ins., .18

Lithospermum, (Heavenly Blue), .15

Terms: Half of amount with order, balance C.O.D.; packing at cost, shipped express.

FOUR STAR NURSERY

Rt. 3, Box 3529 Edmonds, Wash.

EVERGREEN LINERS and CUTTINGS.
FALL TRADE LIST, 1950.
POT-GROWN EVERGREEN LINERS.

Each—Per 100 Per 1000

Juniperus virginiana burkii, 1-yr., 4 to 5 ins., own root, \$0.27 \$0.25

Juniperus chinensis pfitzeriana, 1-yr., 4 to 5 ins., .20 .18

Juniperus hetzi glauca, 1-yr., 3 to 4 ins., .20 .18

Arborvitae, Pyramid, 1-yr., 4 to 5 ins., .18 .16

2-yr., field-grown, .27 .24

Arborvitae, Globe Woodward, 1-yr., 3 to 4 ins., .17 .15

Arborvitae, American Dark Green, 2-yr., 4 to 5 ins., .20 .18

Taxus media hicksii, 2-yr., 5 to 8 ins., .20 .18

1-yr. beds, 5 to 6 ins., .15 .14

HEAVY ROOTED CUTTINGS.
From flats, rooted outside in lath house.

Each—Per 100 Per 1000

Juniperus communis hibernica, \$0.08 \$0.07

Juniperus communis ashfordi, .08 .07

Arborvitae, American Dark Green, .09 .08

Taxus media hicksii, .09 .08

Eunomys patens, .07 .06

Eunomys alatus compactus, .07 .06

Buxus sempervirens, .07 .06

Taxus cuspidata, .10 .09

Taxus media andersoni, .12 .10

Taxus media browni, .12 .10

Taxus media hatfieldi, .12 .10

Taxus media No. 8, spreading, .12 .10

2 per cent discount and free packing for cash with order.

MIAMI NURSERY CO.
Tipp City, Ohio

Member of American Association of Nurserymen and Ohio Nurserymen's Association.

All plants are extra-heavy and ready for the field.

Per 100

Taxus capitata, 12 to 15 ins., 4-yr., TT, \$60.00

Taxus capitata, 10 to 12 ins., 3-yr., TT, 45.00

Taxus cuspidata, 12 to 15 ins., 4-yr., TT, 50.00

Taxus cuspidata, 10 to 12 ins., 3-yr., TT, 40.00

Taxus hicksii, 8 to 10 ins., 2-yr., T, 35.00

STROHL'S NURSERY Fort Wayne, Ind.

1404 N. Anthony Blvd.

LINING-OUT STOCK.

1-yr. bedded. Per 100 Per 1000

Taxus hicksii \$15.00 \$125.00

Taxus cuspidata 15.00 125.00

Taxus hatfieldi 17.50 150.00

Taxus brevifolia 20.00 200.00

Tsuga canadensis.

2-yr. tr., 4 to 6 ins., 7.00 60.00

3-yr. tr., 6 to 9 ins., 11.00 100.00

4-yr. tr., 9 to 12 ins., 16.00 150.00

Complete list of liners on request.

VERKADE'S NURSERIES Wayne, N. J.

Each

Arborvitae, Globe, 18 to 24 ins., \$2.00

Arborvitae, Globe, 2 to 2½ ft., 2.25

Arborvitae, Siberian, 18 to 24 ins., 2.00

Arborvitae, Siberian, 2 to 2½ ft., 2.25

Biota aurea nana, 18 to 24 ins., 2.25

Biota aurea nana, 2 to 2½ ft., 2.50

Prices apply on lots of 25 or more of a size and variety. F.O.B. Clyde. Sheared and of highest quality. We invite your inspection.

THE CLYDE NURSERY Clyde, Ohio

NORWAY SPRUCE.

Twice transplanted and regularly sheared. Dark green foliage.

Each

2 to 3 ft., \$2.00

3 to 4 ft., 3.00

4 to 5 ft., 3.50

B&B at the nursery.

SNIDER'S NURSERY Bowie, Maryland

EVERGREEN PLANT MATERIAL.
ADVANCED LINERS in Azalea, Cornus, Cotoneaster, Ilex, Juniperus, Kalmia, Leucothoe, Pieris, Rhododendron, Taxus, Thuja, Tsuga, Viburnum.

Finished Trees in Colorado Blue Spruce. All Certified for Western Shipment. Write for Wholesale Price List.

H. W. WEBER EVERGREEN NURSERY 16 Summer St. Weston 93, Mass.

TAXUS, CAPITATA AND CUSPIDATA. Per 100

Strong rooted cuttings, 6 to 8 ins., \$ 8.00

2-yr. plants from 2½-in. pots, 25.00

Cash with order, please.

SINGER GARDENS, Stamping Ground, Ky.

5000 Pfitzer's, size 2½, pinched; price, 18c to 20c each.

10,000 rooted cuttings, 10c each.

CHARLES J. SANDERS Monongahela, Pa.

NATIVE WILD FLOWERING PLANTS.
Rhododendrons, Azaleas, Kalmia, Leucothoe and Tsuga canadensis. Evergreens, perennials, shrubs, trees, orchids, ferns and vines.

Send for wholesale price list.
THE THREE LAURELS
Marshall, N. C.

UNROOTED CUTTINGS OF PFITZER JUNIPER, 6 to 10 ins. long, not trimmed. Moss packed; express only, \$10.00 per 1000. Cash with order.

KRONE'S FLOWER SHOP
4221 Grand Ave. Fort Smith, Ark.

NANDINA SEEDLINGS.
Ready to pot, \$20.00 per 1000, postpaid.
DUNLAP NURSERIES Knoxville 16, Tenn.

Advertisers' Experience Shows
American Nurseryman Classified Ads
Bring Results.

FRUIT TREES

LOOK!
SURPLUS 2-YR. APPLE.
Graded to A, N. Standards.

Twelve leading varieties.
Now booking for Fall or Spring deliveries at these attractive low prices:

7/16-in. cal., 3 to 4 ft.	Each
9/16-in. cal., 4 to 5 ft.	\$0.15
11/16-in. cal., 5 to 6 ft.	.20
Also limited supply of 2-yr. Pear. Trade list on request.	.25

PACK TRUE-TO-NAME NURSERY CO.
Phone 82-Y
McMinnville, Tenn.

Peach, Plum, Apricot, Fig, Persimmon, Pecan, in fact anything you might need.
Write for our price list.
FITZGERALD'S NURSERY
Stephenville, Texas

Don't Be Late!
Mail advertising copy to reach
the American Nurseryman
Monday, two weeks before date of issue.

GROUND COVERS

VINCA MINOR (myrtle or periwinkle).
None less than 3 years old, with good roots, 15 to 30 canes to clump, individually made up, fresh-dug, \$37.50 per 1000. Prompt shipment. Quantity orders solicited. 2 per cent cash discount. Also Pachysandra.

H. C. WAUGH
737 Greene St. Marietta, Ohio

PACHYSANDRA TERMINALIS.
Strong, 1-yr. field-grown, \$65.00 per 1000.
HILLCREST GREENHOUSES, Franklin, Pa.

HARDWOOD CUTTINGS

HARDWOOD CUTTINGS.
From Hardy Northern-grown Shrubs and Trees. Delivery after December 1. From our own plantings and blocks checked yearly for accuracy. Cut 7 inches.

	Per 1000
Aronia melanocarpa	4.00
Cornus paniculata	4.00
sibirica	4.00
lutea (yellow bark)	6.00
amomum	4.00
Foraythia intermedia	3.00
primulina	4.00
spectabilis	3.00
Elder, Golden	6.00
Cutleaf	4.00
Red-berried	5.00
canadensis	3.00
Hydrangea P.G.	5.00
Hydrangea A.G.	5.00
Privet, Amur	3.00
Regel (true)	3.00
Ibota	3.00
Honeysuckle, Morrowi	3.00
bella albidia	3.00
bella rosea	3.00
tat. rosea	4.00
korolkowi	4.00
zabeli	5.00
maackii	4.00
Diervilla trifida	4.00
Philadelphus grandiflorus	3.00
Mt. Blanc	3.00
Bouquet Blanc	3.00
coronarius	3.00
lemoinei	5.00
Physocarpus opul. aureus	3.00
Physocarpus opul. nanus	3.00
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Spiraea billardi	3.00
froebeli	3.00
thunbergii	3.00
vanhouttei	5.00
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Snowberry	5.00
Lilac, rothomagensis	3.00
Viburnum dentatum	4.00
Poplar, Lombardy	3.00
Willow, Niobe	3.00
Wisconsin	3.00
Golden	3.00
Pussy	3.00
Thuja pyramidalis	25.00
globosa	25.00
warceana	25.00
Packed free. Cash with order, please. Delivery in good order guaranteed.	

THE SCOTCH GROVE NURSERY
Scotch Grove, Iowa

HARDY PLANTS

WELLER'S FAMOUS PHLOX.
(Paniculata.)

With That Wonderful Root System.
TEN HIGHLIGHTS
out of the 75 varieties we grow.
Strong, No. 1. With all roots.

	Per 10	Per 100
Bluette, large blue and rose,		
magic color	\$2.50	\$20.00
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pure white	2.25	17.50
Order now for fall planting or propagation.		
Ask for our catalog for other varieties.		
3 per cent for cash with order, or established		

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Holland, Mich.

HARDY CHRYSANTHEMUMS—Ann, Autumn Song, Alpink, Alabaster, Allen Felton, Bridesmaid, Betty, Coral Sea, Challenger, Courageous, Cerise, Caliph, Dahlia-mum, Ember, Daydream, Egypt, Early Wonder, Avalanche, Nancy, Crimson Buttercup, Empire State, Ethel, Bonfire, Border White, Burgundy, Glacier, Lavender, Lassie, Heatherbloom, Inspiration, Erma Linda, Mt. Rainier, Forward, Fortune, Maiden Blush, Geronimo, My Lady, Murillo, Jean Harlow, Harbinger, Lady Electra, Little Eskimo, Minons, Major, Omaha, Olive Longland, Red Velvet, Sonny Boy, The Chief, Sunapee, Polar Ice, Quaker Maid, Red Hussar, Rose Mandell, Ronnie, Santa Claus, Summer Sunset, The Shiek, Trigo, Tampico, Wm. Longland, Terry Charm, Magenta, Yellow, White, Rose, Orchid Spoon. Field plants, 10 for \$1.00.

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For Fall delivery.

	Per 12	Per 100	Each per 1000
DICENTRA SPECTABILIS.			
Mail-order size, 3 to 5-eye	\$25.00	\$0.26	
Garden size, large,			
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6 to 8-eye	3.00	20.00	.15
We have specialized in growing Bleeding Hearts for many years. Because of our experience and cooperation with the Soil Conservation Service, we believe our plants to be the best obtainable. Long, clean-rooted plants, the highest quality in every respect.			

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Strong, field divisions. Per 100
Majestic, best large single. \$15.00
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Strong, clean stock. Per 100

English 3-in. pots. \$16.00

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Wrexham or Hollyhock strain,

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THE DELPHINIUM OF TOMORROW.
LYONDEL GIANT HYBRIDS.

Massive Spikes, Stately, Majestic, Colorful. A new strain especially selected for its large-size flowers and wide range of beautiful colors. Doubles, semidoubles, singles. Extremely hardy. Mixed only. Seeds from carefully selected plants.

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Strong rooted cuttings. Per doz. Per 100

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Strong, 1-yr. field-grown transplants. Per 10 Per 100

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1 and 2-yr. \$1.25 \$10.00

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New and Standard Kinds.

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Dicentra spectabilis, 3 to 5-eye. \$25.00

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Rooted cuttings from the propagating sand, original leaves, only \$15.00 per 100, plus packing and beetle treatment if necessary.

Large specimen Hollies, platformed, to 16 ft.

Trade list and free booklets.

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Well berried sprays, hormone-treated. Packed in 10-lb. cartons, 50c per lb.; 45c per lb. in 100-lb. orders or over.

Prices F.O.B. Portland, Ore.

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Top-grade, glossy English Holly, heavily berried; no wood, 55c per lb.; 100-lb. lots, 50c per lb. State shipping date. Cash, please.

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NEW LONDON ROSES.

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ROSEBUSHES—2-yr. plants, grown right, graded right, packed right. Very complete assortment of varieties. Ask for price list and book your requirements now.

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Polyanthas (surplus).
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Springfield, Mo.

SEEDS.

	Per lb.
Viburnum lentago, clean.....	\$2.00
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Corylus americana (Hazelnut).....	.70
Box Elder.....	.35
Bittersweet (C. scandens), clean.....	3.50
Crataegus mollis, clean.....	2.00
Rosa blanda, clean.....	2.35
Lonicera morrowi, clean.....	4.25
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Write for complete list.
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1950 crop.
Amelanchier Canadensis, D.B.
Crataegus crusgalli, C.S.
Viburnum americanum, C.S.
Viburnum prunifolium, C.S.
Sorbus americana, C.S.

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Oregon-grown New Crop
Hardy Polyantha Primrose Seeds.
Newer colors, large florets.
Trade pkg., \$1.00; 7 pkgs., \$5.00.
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SEEDS.

Juniperus virginiana (Red Cedar) seeds.
From inspected disease-free area.
Let us quote on your needs.

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Lombardy poplar, 6 to 8 ft., \$20.00 per 100; 4 to 5 ft., \$10.00 per 100; 2 to 3 ft., \$5.00 per 100. Carolina poplar, 8 to 10 ft., \$30.00 per 100; 6 to 8 ft., \$20.00 per 100. California and North Amur Privet hedge, 2 to 3 ft., \$7.00 per 100; 18 to 24 ins., \$6.00 per 100.
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Rolla, Mo.

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2-yr., beds, 8 to 12 ins.....	\$35.00
Juniperus glauca hetzi,	
2-yr., field, 8 to 12 ins.....	37.50
Retinospora plumosa aurea,	
2-yr., beds, 8 to 12 ins.....	30.00
Thuja occ. lutea,	
2-yr., beds, 8 to 12 ins.....	35.00
Thuja occ. spiralis (Douglas Pyr.),	
2-yr., beds, 8 to 12 ins.....	35.00
Thuja pyramidalis,	
2-yr., beds, 8 to 12 ins.....	35.00
2-yr., beds, 12 to 15 ins.....	42.50
2-yr., beds, 15 to 18 ins.....	50.00
Thuja woodwardi (Globe),	
2-yr., beds, 6 to 10 ins.....	35.00
Thuja elegantissima,	
2-yr., beds, 8 to 12 ins.....	35.00
Aralia pentaphylla, 12 to 18 ins.....	8.00
Aralia pentaphylla, 18 to 24 ins.....	10.00
Corylus americana, S, 6 to 12 ins.....	6.00
Cornus amomum, H.C., 9 to 12 ins.....	6.00
Leutzia P. of R., H.C., 9 to 12 ins.....	4.00
Forsythia Spring Glory, H.C., 9 to 12 ins.....	4.00
Hydrangea, P.G., No. 1 layers,	
\$70.00 per 1000.....	9.00
Juglans regia (hardy English Walnut), S,	
10 to 15 ins.....	30.00
Lonicera fragrantissima, H.C.,	
9 to 12 ins.....	5.00
12 to 15 ins.....	7.00
Lonicera tatarica rubra (Wheeling),	
H.C., 9 to 12 ins.....	4.00
12 to 15 ins.....	6.00
Phil. coronarius, H.C., 9 to 12 ins.....	4.00
Phil. coronarius, H.C., 12 to 15 ins.....	6.00
Phil. virginialis (true strain), H.C.,	
9 to 12 ins.....	12.00
12 to 15 ins.....	15.00
15 to 18 ins.....	17.50
Platanus acerifolia, H. C., 12 to 15 ins.....	8.00
Platanus acerifolia, H.C., 15 to 18 ins.....	9.00
Platanus acerifolia, H.C., 18 to 24 ins.....	10.00
Populus nigra italica (Lombardy	
Poplar), H.C., 9 to 12 ins.....	3.00
12 to 15 ins.....	3.50
15 to 18 ins.....	4.00
18 to 24 ins.....	4.50
2 to 3 ft.....	6.00
Salix purpurea nana (Arctic Willow), H.C.,	
9 to 12 ins.....	6.00
12 to 15 ins.....	9.00
Spiraea Vanhouttei, H.C., 9 to 12 ins.....	4.00
Spiraea Vanhouttei, H.C., 12 to 15 ins.....	6.00
Weigela Eva Rathke, grafts,	
1-yr. field-grown, 9 to 12 ins.....	12.00
1-yr. field-grown, 12 to 15 ins.....	14.00
1-yr. field-grown, 15 to 18 ins.....	16.00
Weigela hendersoni, H.C., 9 to 12 ins.....	4.00
12 to 15 ins.....	5.00
15 to 18 ins.....	6.00
Weigela vanhecki, grafts,	
1-yr. field-grown, 9 to 12 ins.....	14.00
1-yr. field-grown, 12 to 15 ins.....	16.00
1-yr. field-grown, 15 to 18 ins.....	18.00

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Spring or Fall Delivery.

	Each
Azaleas:	
Hinodegiri, 2 to 4-in. spread.....	\$0.18
Hinodegiri, 4 to 6-in. spread.....	.25
Hino-Crimson, 2 to 4-in. spread.....	.18
Macrantha Lovett, 2 to 4-in. spread.....	.18
Macrantha Lovett, 4 to 6-in. spread.....	.25
Daphne, 2 to 4-in. spread.....	.18
Daphne, 4 to 6-in. spread.....	.25
Mollis Cream, 2 to 4-in. spread.....	.08
Mollis Cream, 6 to 8 ins., 2-yr., ad.....	.25
Mollis Cream, 8 to 12 ins., branched.....	.35
Mollis Cream, 12 to 15 ins., branched.....	.50
Andromeda (Pieris), 4 to 6-in. C. X.....	.20
Cholera terata, 8 to 10 ins., X.....	.35
Daphne mezereum, 8 to 10 ins., X.....	.12
Daphne mezereum, 10 to 12 ins., X.....	.17
Daphne odora, 8 to 10 ins., frame.....	.22
Daphne odora, 10 to 12 ins., frame.....	.35
Daphne odora, 12 to 14 ins., frame.....	.45
Heather, mediterranea, 2 to 4-in. spread.....	.15
Heather, mediterranea alba, 2 to 4-in. spread.....	.15
Heather, Springwood White, 2 to 4-in. spread.....	.15
Heather, carnea, 2 to 4-in. spread.....	.15
Cypress, nestoides, X, ad.....	.20
Thuja lobbi, 4 to 8 ins., X, ad.....	.17
Thuja lobbi, 6 to 8 ins., X, ad.....	.20
Thuja woodwardia, globe, 6 to 8 ins.,	
X, ad.....	.18
Skimmia japonica, 2 to 4-in. branched.....	.35

Cash with order. F.O.B. Shipped express.
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Rt. 3, Box 3529 Edmonds, Wash.

RED JAP. MAPLE SEEDLINGS.

Selected 100 per cent seed. (Sturdy.)

	Per 100 Per 1000
8 to 10 ins., XXX, 3-yr.....	\$30.00
6 to 8 ins., XXX, 3-yr.....	\$25.00
8 to 10 ins., X, 2-yr.....	25.00
6 to 8 ins., X, 2-yr.....	22.50
8 to 10 ins., X, 1-yr.....	18.00

Delivery spring or fall.
ELWOOD HUBBS
204 Delaware Ave. Palmyra, N. J.

PINK DOGWOOD (Cornus florida rubra).
4000 2 to 3 ft., \$1.75 each.
100 or more at \$1.50 each.
4000 18 to 24 ins., 75c each.
3000 12 to 18 ins., 75c each.

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Cattell Rd. Sewell, N. J.

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Strong, field-grown plants.

	Per 100	Per 1000
Honeysuckle, heckrottii,		
12 to 18 ins.....	\$12.00	120.00
Euonymus patens, true-berried		
type, 10 to 12 ins.....	15.00	150.00
Euonymus coloratus,		
10 to 12 ins.....	12.00	120.00
Euonymus radicans,		
10 to 12 ins.....	12.00	120.00
Euonymus carrierei, large,		
leaved type, 10 to 12 ins.....	12.00	120.00
Lombardy Poplar (whips),		
6 to 12 ins.....	2.00	20.00
Lombardy Poplar (whips),		
12 to 18 ins.....	2.50	25.00
Lombardy Poplar (whips),		
18 to 24 ins.....	3.00	30.00

ROOTED CUTTINGS.
Viburnum opulus sterile..... 10.00 80.00
Common Snowball..... 10.00 80.00
Euonymus coloratus..... 10.00 80.00
Euonymus patens, true-berried type..... 12.00 120.00
Spiraea fireball..... 3.50 30.00
Spiraea Anthony Waterer..... 4.00 35.00
Cash, please. No packing charges.

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R. 4 Ottawa, Kan.

FOR SALE

	Each
200 Norway Spruce, 2 to 3 ft.....	\$1.50
200 Golden Cypress, 15 to 24 ins.....	1.00
900 Pyramidal Arborvitae, 2 to 3 ft., 1.50	
150 Canadian Hemlocks, 1 to 1½ ft., 1.00	
200 Andorra Junipers, 12 to 15 ins., 1.00	
250 Black Hills Spruce, 15 to 24 ins., 1.25	
300 American Arborvitae, 2 to 3 ft., 1.50	
100 American Arborvitae, 3 to 4 ft., 2.00	
1000 Cushion Mums, 18-in. claps, B&B.....	4.00
400 Forsythia fortunei, 4 to 5 ft., heavy B&B clumps.....	1.00
100 Weigela rosea, 3 to 4 ft., B&B clumps.....	1.00
400 Spiraea vanhouttei, 2 to 3 ft., claps, bare-root.....	.30
100 Chinese Elms, 4 to 7 ft., heavy.....	1.00
10,000 Andorra Junipers, 6 to 10 ft., T.....	.12
5000 Hetzi glauca juniperus, 7 to 10 ft., T.....	.15

All evergreens, except liners, are heavy, well sheared and balled and burlapped. Nice young, healthy stock.

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St. Marys, W. Va.

FLOWERING PEACH TREES.

Double Red-flowering, Double White-flowering, new Red-leaved, Peppermint-flowering Peach, new Red-flowering Weeping Peach.

	Each
6 to 12 ins.....	\$0.15
12 to 18 ins.....	.20
18 to 24 ins.....	.25
White-flowering Dogwood	
18 to 24 ins., br.....	.25
2 to 3 ft., br.....	.35
3 to 4 ft., br.....	.50
Pink-flowering Dogwood, 1-yr. buds	
12 to 18 ins.....	.75
18 to 24 ins.....	1.00
2 to 3 ft.....	1.50

Order in multiples of 25 or 100. 5 per cent cash discount. Free boxing and packing.

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McMinnville, Tenn.

MIMOSA.

Albizia julibrissin.
Now booking orders for future delivery at rock-bottom prices for clean, well grown, healthy stock of this popular, most beautiful, small, pink-flowering tree. Easy to transplant. Grows quickly.

	Per 100	Per 1000
6 to 10 ins.....	\$2.50	\$20.00
12 to 18 ins.....	4.00	30.00
24 to 30 ins.....	6.00	35.00
36 to 48 ins.....	10.00	70.00
50 at 100 rate, 500 at 1000 rate.		
3 to 4 ft. transplants.....	17.00	100.00
4 to 5 ft. transplants.....	30.00	225.00
6 to 7 ft. transplants.....	65.00	650.00
7 to 8 ft. transplants.....	90.00	900.00

Not less than 10 at 100 rate.
RICE PLANT CO.
Experiment, Ga.

READY NOW.

4000 Weeping Willow
5000 Lombardy Poplar
and
4000 Silver-leaved Maple.
All well branched, nice trees.
3 to 4 ft., 15c; 4 to 5 ft., 20c; 5 ft., 25c each per 100.
10 per cent off per 1000 or more.
KIRBY'S NURSERY
Mt. Selman, Texas

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Box 122 Winfield, Kan.

MIMOSA (Silktree). Albizia Julibrissin.

	Per 100	Per 1000
6 to 12 ins.	\$ 3.50	\$ 28.00
12 to 24 ins.	8.00	76.00
2 to 3 ft.	18.00	160.00
3 to 4 ft.	25.00	230.00
4 to 5 ft., 2-yr.	35.00	330.00
5 to 6 ft., 2-yr.	55.00	500.00
6 to 7 ft., 2-yr.	75.00	.....

300 at the 1000 rate.

These trees are grown from the best deep pink flowering trees that we know of in Oklahoma. In this way we strive for permanent satisfaction. This should mean a lot to you and your customers.

Liberal Grading—No Packing Charge.

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Ohio's oldest nursery offers you red and green Barberry. Grown right. Graded right. Berberis thunbergii (Red-leaved Barberry).

	Per 10	Per 100
12 to 15 ins., 3-yr., Tr.	\$2.00	\$17.50
18 to 24 ins., 3-yr., Tr.	3.50	30.00
24 to 30 ins., 3-yr., Tr.	4.00	35.00

Berberis thunbergii (Green-leaved Barberry).

Per 10 Per 100

12 to 18 ins., 3-yr., Tr. \$2.00 \$15.00

18 to 24 ins., 3-yr., Tr. 3.00 25.00

Cash with order. Hocking free. Est. 1877

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Call Road Perry, Ohio

LINING-OUT STOCK.

Extra-heavy liners, vigorous roots.

The finest money can buy.

	Per 100	Per 1000
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Berckmans Golden, 2½-in. pot. \$20.00 \$175.00

Bonita, green, 2½-in. pot. 20.00 175.00

Blue Spire, 2½-in. pot. 20.00 175.00

Wax-leaved ligustrum, 2½-in. pot. 15.00 120.00

Gardenia fortunei, 2½-in. pot. 15.00 120.00

Gardenia radicans, 2½-in. pot. 15.00 120.00

Barbados Cherry, 2-in. pot. 15.00 120.00

BRADSHAW NURSERY

Box 67, League City, Texas

Ginkgo biloba, liners.

	Per 100	Per 1000
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2 to 4 ins. \$3.00 \$25.00

4 to 6 ins. 4.00 35.00

6 to 8 ins. 5.00 45.00

Berberis thunbergii Atro. (Red-leaved Barberry), transplants. Inspection certificate No. 75.

10 to 15 ins. 12c each

15 to 18 ins. 18c each

Cash with order. Packing extra.

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GRAFTED CHINESE CHESTNUT TREES

We have a fine lot of this year's grafted Chinese Chestnut trees, best varieties. Will be ready for retailers to take over fall, 1951.

SUNNY RIDGE NURSERY

Swarthmore, Pennsylvania

	Per 1000
--	----------

Chinese Arborvitae seedlings, strong.

5 to 10 ins. \$25.00

Cedar seedlings, bed-run. 25.00

Cedar seedlings, graded, strong. 35.00

Chinese Elm, 3 to 5-in. cal. 35.00

Write for special prices.

KLEIN NURSERY Enid, Okla.

RED CEDAR.

10 to 15-in., field-grown transplants.

\$6.50 per 100, \$60.00 per 1000.

Grafting grade, \$8.50 per 100.

HOME NURSERY, Cuba, Kan.

NANDINA SEEDLINGS.

Strong seedlings, properly packed.

Postpaid in U.S.A., \$18.00 per 1000.

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Our complete list of lining-out stock covering both broad-leaved and coniferous evergreens, shrubs, etc., is now ready for mailing upon receipt of your request.

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A high-quality, late-keeping apple developed at the New York agricultural experiment station, Geneva, is now ready for trial by fruit growers, according to an announcement by station fruit specialists. The new variety, named Monroe, has yellow flesh and is described as "fine-grained, firm, tender, juicy, aromatic and pleasantly subacid to eat, and of very good quality." The second test nursery trees in the station orchard appear to be hardy and healthy and have blossomed annually since they first came into bloom in 1931. In general, the crop has been medium to good half the time, with a light crop in between.

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Limited quantities of planting stock of Monroe are available from the New York State Fruit Testing Association, at Geneva.

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PLANT NOTES.

[Continued from page 17.]

of good garden plants, many of them now seldom grown, and, of course, he would be vexed by an equally large, or larger, number of weeds. He would be pleased, I am sure, by the prevalence of beautiful foliage, mostly fine cut and, in many cases, silvered as well. He would find a more limited range of flower color than might naturally be expected in a group of its size, but he would surely be satisfied with what was found. And he would be pleasantly surprised by the wide variation in stature, ranging from the inch-tall *P. nitida* to the four feet or more of some forms of the shrubby *P. fruticosa*.

When a gardener speaks of the shrubby cinquefoil, he almost invariably has *P. fruticosa* in mind. He might, of course, mean the Himalayan, *P. ambigua*, although that is not likely if he were an American, for that plant is seldom, if ever, seen in this country. He might also mean the white-flowered *P. tridentata* of our eastern states, whose woody base entitles it, at least, to be put among the subshrubs.

While circumnavigating the northern hemisphere, *P. fruticosa* has made itself at home in various habitats. In North America it inhabits both bogs and dry hillsides; consequently, we find material in nature that is suited to most conditions one is likely to encounter in gardens. In fact, it would be difficult to find species of more varied uses. We should find, for instance, ground-hugging forms and low bushes, of one foot or less, which are admirably suited to the rock garden; bushes, of eighteen inches to two feet, which make ideal subjects for the hardy border; plants, clipped or natural, for low hedges, and finally, the tall ones, of four feet, for shrub border.

The species also varies somewhat in flower, mostly in shades of yellow, although there are several white forms apparently much confused in their naming in gardens. And then the species varies not a little in leaf form, running all the way from the thymelike leaves of variety *farreri* to the silvered silk of *vilmoriniana*.

Of the kinds available in this country, *vilmoriniana* is the most striking in its silvery silky coat. It grows to four feet in height and is generous with its pale yellow (chamois-yellow, someone has called it, but certainly not white as Bean wrote) flowers, abundant in June and early summer, sparse during summer and again abundant in autumn. A characteristic which I have not seen mentioned

is its desirable trait of carrying its lovely foliage later than other fruticosa forms that I know. Variety farreri seems to be the most popular of the yellow-flowered, green-leaved kinds available in this country. It is a plant that grows to two feet or slightly more, as it appears here in northern Michigan, slender and fine-leaved, with an almost endless procession of bright yellow flowers.

There is a tall, white-flowered form, variously known in gardens as leucantha dahurica (that one should be dwarf, I believe), albicans and veitchi. It is not for me to say which of the names is the correct one, but from the botanist's description of veitchi, its gray-green leaves and snow-white flowers make me think that it is correctly named. Be that as it may, the plant deserves far more attention than it now receives.

Another much-named form, a low bunched bush with many branches almost prostrate and others arching at the height of one foot or so, has much to recommend itself as a garden plant. Its inch-wide golden flowers over silvery leaves, which hang on late in autumn and turn a pretty russet, all go into the making of a lovely little shrub. It is variously known as beesi, beesiana, farreri prostrata (which is patently false) and nana argentea, with the last being given preference by most. Whatever the name may be, it is something that would adorn any garden.

Propagation is easy from seeds, although one should not expect true material from garden-saved seeds if several kinds are growing in the same area. When that is the case, or when one is working on selected plants, he will have to depend upon cuttings. Fortunately, that is an easy method of increase. New growths, rubbed off with a heel, should be taken as soon as they are long enough to handle and rooted in an outdoor frame, shaded about half. If they are taken while still sappy and fresh, they should root 100 per cent within a fortnight; if taken when they are hard, they are both slow and uncertain.

They are truly accommodating plants, adjusting themselves to almost any situation or exposure. Best results, including most flowers, are, however, likely to follow planting in a not too rich soil in full sun. However, we have a planting of variety farreri in more than half shade that gives most gratifying results. As garden plants, they require little care.

Anemone Nemorosa.

The woodland section of anemone, which is an arbitrary garden term

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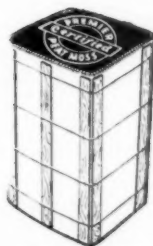
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embracing a long list of shade-loving windflowers, offers a number of admirable adornments for a half-shady situation. They are mostly of easy culture, asking for little more than some protection from the sun, a leafy soil and some attention to their moisture needs during their growing period.

Anemone nemorosa, the European wood anemone, of which a number of named forms are now available in this country, is typical of the section. In it we have a willing plant, making itself a home in any congenial spot and spreading its pretty divided leaves around by means of slender rootstocks. From these arise 6-inch stems carrying inch-wide flowers varying from pure white in variety alba to the beautiful powder-blue of robinsoniana.

In a garden with suitable situations, it would be impossible to have too many of these charming woodlanders for the May and June parade of color. Robinsoniana is perhaps the best of the group from the color standpoint, but the lavender-blue of allenii, Bluebonnet with its large flowers of a deeper blue and later flowering period and the double white form are needed to complete the picture.

Here is material that will bear the investigation of the neighborhood grower who is looking for plants a little out of the ordinary which are, at the same time, of easy culture. Propagation of the named forms is from divisions of the running rootstock; the type may be grown from seeds, preferably planted in fall or as soon as ripe.

Hylomecon.

A New Jersey reader, who seems to have a yen for the unusual, asks for a cultural note on Hylomecon japonicum. I have to go back at least twenty years in memory, but this is it, as I now recall: From a pretty tuft of green leaves, each made up of five leaflets, it sends aloft 8-inch stems bearing 2-inch wide yellow poppies, quite long-lasting as poppies go. We only had the species two or three years, for reasons which I do not now recall, but I do remember that it wanted constant moisture in a leafy soil.

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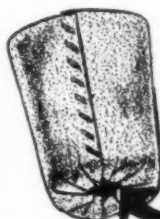
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No. 2	7½ ins.	7 ins.	8 ins.	78 lbs.	4.75	45.00	
No. 3	9 ins.	8 ins.	9 ins.	88 lbs.	5.25	50.00	
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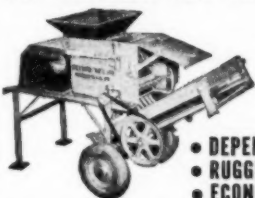
MIMOSA TREES IMMUNE TO WILT-CAUSING FUNGUS.

Pathologists of the United States Department of Agriculture have developed a new strain of mimosa trees that is immune to the wilt-causing fungus, fusarium, and that may be easily propagated by root cuttings.

When experiments conducted by Dr. George H. Hepting and other U. S. D. A. pathologists showed that a fungus of the genus fusarium causes mimosa wilt, they also showed that the source of the infection is in the soil; that the fungus enters the roots and spreads upward in water-conducting tissue, and that any ready means of transporting infested soil or infested trees, such as by shoes, automobile tires, fenders, trucks or trailers, could spread the fungus. Since the mimosa wilt was first recognized at Tryon, N. C., in the early part of the 1930's, it has spread to eighty-two counties in six states from Maryland to Alabama. Sprays are ineffective, inasmuch as they cannot reach the roots from where the fungus attacks.

Knowing that strains of tomato, tobacco, cotton and many other plants proved resistant to fusarium wilts, the pathologists collected mimosa seeds at various locations from Maryland to Louisiana and grew

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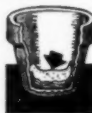
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1,000 mimosa seedlings in a U. S. D. A. greenhouse during the winter of 1939. Repeatedly inoculated with the fungus, the seedlings were often tested to see if they could withstand the attack. Twenty of the trees are growing at Tryon today, in spite of numerous inoculations.

Seedlings from these strong trees were not uniformly resistant; so the experimenters increased resistant stock vegetatively. They found that root cuttings proved most effective for propagating wilt-resistant mimosa trees. All cuttings rooted from resistant trees continued to be resistant, but cuttings from nearby wilding trees quickly succumbed to the fungus. Although the resistant mimosa is still being developed at the federal government's nursery at Tryon, the strain will eventually be on the market.

FRANCO-AMERICAN GRAPES.

Cross-bred American and French grape varieties which met with considerable approval in Europe at the turn of the century are showing good promise in New York state plantings. The so-called French hybrids have potentialities for both wine and desert use in this country.

The crosses were first made in France late in the nineteenth century, when French hybridizers noted the resistance of American varieties to a root louse which was destroying European plantings. The successful new varieties possessed the quality of the French grapes and the resistance of the American stocks and were planted quite universally.

Later, some of the hybrids were brought to the New York agricultural experiment station, at Geneva, for test plantings in that area, where many of them have proved adaptable to New York's soil and climatic conditions.

The Franco-American crosses run the full gamut of color, size and flavor characteristics and are being tested as individuals and as breeding stock at the Geneva station. Cultural tests have been passed, but further work is being directed toward determining their possibilities for wine and desserts. They are not as yet recommended except on a trial basis.

Most popular of the hybrids which produce white wine grapes are the Ravat 6, Seibel 4986, Seibel 9110, Seibel 10868, Seibel 13047 and Seyve-Villard 14287. Among the red wine grapes, the studies are being concentrated on Baco 1, Seibel 1000, Seibel 5898, Seibel 6339, Seibel 7053 and Seibel 10878. As a rule, all of these varieties run high in acidity and sugar content.

NEW PLANT PATENTS.

The following plant patents were issued recently, according to Rummeler, Rummeler & Snow, Chicago patent lawyers:

No. 982. Dracaena plant. John A. Blaser, Tallavast, Fla. A new and distinct variety of dracaena plant of the cordyline family, characterized particularly by its dwarf, compact growth; ease of propagation, and small narrow leaves with variegations of green and brilliant coloring, ranging from purple to red.

No. 983. Rose plant. Herbert C. Swim, Ontario, Calif., assignor to Armstrong Nurseries, Inc., Ontario, Calif. A new and distinct variety of rose plant, characterized as to novelty by the color of its blooms and the permanence of the red pigment throughout the life of said blooms; by the repand form of the flower petals; by the floriferousness of the variety, combined with the large size of the flowers, and by the substance of the petals, which gives the flower lasting quality, with respect to both form and color.

No. 984. Rose plant. Herbert C. Swim, Ontario, Calif., assignor by mesne assignments to Paramount Nurseries, West Grove, Pa. A new and distinct variety of rose plant.

No. 985. Rose plant. Herbert C. Swim, Ontario, Calif., assignor to Armstrong Nurseries, Inc., Ontario, Calif. A new and distinct variety of rose plant, characterized as to novelty by the bright, unfading red color of its flowers; by the heavy texture of petals, making them resistant to injury from weather conditions; by the regularity of both bud and flower form; by the long-lasting quality of flowers, either on the bush or cut; by the unusual color of both young and mature leaves; by the abundance of the foliage, and by the bushy, upright habit of plant growth.

No. 986. Rose plant. Fred H. Howard, deceased, late of Montebello, Calif., by Minnie J. Howard, executrix, Montebello, Calif., assignor to Howard & Smith, Montebello, Calif. A new and improved variety of hybrid tea rose plant, characterized particularly by its vigorous, well proportioned growth; by its resistance to burning in hot sun; by its habit of breaking to the last eye, thus enabling it to become a very prolific bloomer; by its occasional truss formation of four or five flowers, and by its rose-colored flowers with heavy waxlike petals and abundant fragrance.

No. 987. Chrysanthemum plant. Emil Prushek, Niles, Mich., assignor to the R. M. Kellogg Co., Three Rivers, Mich. A new and distinct variety of chrysanthemum plant, characterized as to novelty by its dwarf, compact growth; by its early flowering; by its long blooming season; by the long and consistent color life of its blooms; by the large size of the blooms; by the massing of the blooms to cover the foliage, and by the white color of the blooms.

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[Concluded from page 42.]

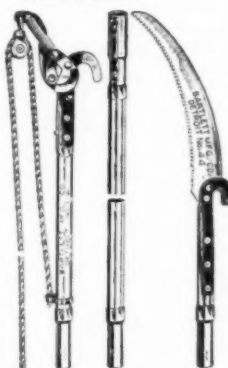
they have more business than they can execute during the spring rush. A lower rate may be charged for your services during the off season to give a motive for postponement to the customer with a borderline budget. The customer with no budget

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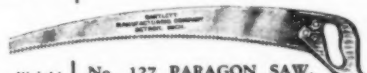
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72 in. . . . EASILY
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72-in. Section . . . 2	
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can be quickly and
easily assembled to
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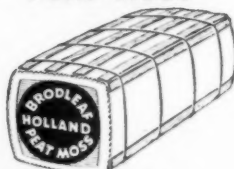
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can help you pay for your off season during your rush season. Such a policy eliminates the nuisance customer who wants service day before yesterday, but is not worth your time during the spring rush. Some nurseries carry a backlog of small jobs which can be worked in, but with no promised date of performance. The lag between the time when the order is placed and when it is filled, however, should not be over six months, and a written contract should be secured to prevent the customer's altering your mutual understanding.

To summarize: Avoid any services which are not profitable. If you have salesmen who do not understand estimating, give them a price list based on the maximum costs which you have experienced (this is particularly important in grading lawns); then the salesmen may overestimate on a job here and there, but they will never lose you money. If the quality of your work and the reputation you have in your community does not warrant the acceptance of your prices, then what I have said does not apply. But a landscape service organization with a good reputation has no excuse for not charging what it needs to make a profit.

JOSEPH LAMBERT MARRIES.

Joseph O. Lambert, Jr., president of Lambert Landscape Co., Dallas, Tex., was married October 28 to Mrs. Evelyn del Barrio, Dallas, at the Italian villa of Kelvin Cox Vanderlip, Palos Verdes Estates, Los Angeles. Henry Lambert, a brother of the groom, was best man, and the bride was unattended.

Intimate friends of the couple gathered for the garden wedding at noon and attended a luncheon reception. The bride and groom left on a motor tour which will take them back to their residence, at 3201 Turtle Creek drive, Dallas.

Mrs. Lambert is the daughter of Mrs. Carmen Tata, of Dallas and Washington, D. C., and was formerly employed as fashion director of Nieman-Marcus department store, at Dallas. The groom is the son of Mr. and Mrs. J. O. Lambert, Shreveport, La.

ABOUT 20,000 tropical plants were propagated in 1950 at the Florida Nursery, Gainesville, Fla., which also specializes in evergreens and ornamentals. Owners Mr. and Mrs. Leonard F. Mullis hire one year-around employee to help them with the work.

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OBITUARY

Horace C. Sawyer.

Horace C. Sawyer, manager of the mail-order nursery department of the Earl E. May Seed Co., Shenandoah, Ia., died suddenly November 3 at the age of 44. Funeral services were held Monday afternoon, November 6, at Shenandoah.

Born at Oneida, Ill., Mr. Sawyer moved with his parents to Shenandoah, where he graduated from high school. He worked in the garden seed department of the Earl E. May Seed Co. for two years and then entered Iowa State College, Ames, from which he graduated in 1932 with a bachelor of science degree in horticulture. Mr. Sawyer had been associated with the Earl E. May Seed Co. since 1934, with the exception of a year and ten months when he was a partner in the Shenandoah Floral Co. In 1941 he became manager of the mail-order nursery department of the May firm.

In September Mr. Sawyer had been elected secretary-treasurer of the National Mail Order Nurserymen's Association.

NITROGEN SUPPLY LARGE.

About 1,000,000 tons of nitrogen for fertilizer—about three times that of any prewar year—were available for United States consumption during the fiscal year ending June 30, disclosed an official of the United States Department of Agriculture last month.

Of this, United States production of nitrogen accounted for 812,000 tons and imports another 220,300 tons.

United States exports of nitrogen for fertilizer purposes during the fiscal year were 351,400 tons.

Before export, the United States had on hand a total of 1,164,200 tons of fertilizer nitrogen, of which 788,100 tons were produced by commercial producers, 183,000 tons by army plants, 153,100 tons from by-products and 40,000 from other sources.

During fiscal 1950, commercial producers turned out 154,500 tons of ammonium nitrate, 169,900 tons of ammonium sulphate and 95,300 tons of other solids. Army plants produced 96,400 tons of ammonium nitrate, 77,400 tons of ammonium sulphate and 9,200 tons of other solids.

Demand for fertilizer this year has been steady, unlike many earlier

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years, when it has fluctuated seasonally. Three-fourths of the demand usually is concentrated in the period from January to June.

This year, partly because farmers are sure of price supports, there has been orderly movement from producers to users. Steady demand has created more efficient production and distribution.

WATER HYACINTH CONTROL.

The water hyacinth has long been recognized as a serious problem in waterways along the Gulf coast, with its adverse effect on agriculture, health and wildlife and interference with drainage and navigation. Estimates of the damage which this species annually causes range from \$5,000,000 to \$14,000,000, and hundreds of thousands of dollars have been spent each year to keep open channels through dense masses of water hyacinths.

An all-out effort to solve the problem was started in 1948, and the experimental results obtained by the Boyce Thompson Institute for Plant Research, Inc., Yonkers, N. Y., and assisting investigators, were reported in a professional paper issued by the institute.

Of all the chemicals tested, 2,4-D was found to be the most effective for killing and sinking the water hyacinth. It is also fairly effective on alligator weed, a land plant that often spreads rapidly from banks over mats of hvacinths. An effective treatment, incidentally, is one which kills all hvacinths and causes them to sink within sixty days after the spray is applied. Killing of all plant parts above the water does not indicate that the plant is dead and will sink within the 60-day period.

The superiority of 2,4-D was proved after tests comparing it to 2,4-5, or trichlorophenoxyacetic acid, and equivalent concentrations of contact types of weed killers, including arsenicals, chlorates, chlorinated benzenes, chlorinated phenols, ammonium sulphamate, ammonium thiocyanate, sodium trichoroacetate and one of the dinitrophenols.

For killing and sinking of hvacinths, the alkalamine salts of 2,4-D produced by the Dow Chemical Co., and the triethanolamine salts are of equal activity when compared on an acid equivalent basis. They are both as effective for killing and sinking hvacinths as the isopropyl and butyl esters of 2,4-D, contrary to a prevalent opinion, when used at rates as high as eight pounds per acre or at lower doses of two to four

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emulsifiable wax preparation for transplanting trees and shrubs, designed to—

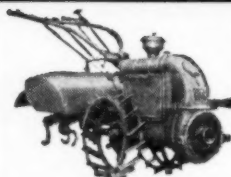
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- ✓ INCREASE YOUR PROFITS

D-WAX, when applied to deciduous, evergreen, ornamental, fruit trees and shrubs, helps plants retain their moisture. D-WAX can be used with any type sprayer. One application is usually all that is required.

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pounds per acre. All of these formulations of 2,4-D are slightly and consistently more effective than the sodium salt.

The relative effectiveness of chemicals or formulations depends upon the dosage range or upon the concentration of the active ingredient in the spray solution. However, regardless of the quantity of solution used, a 2,4-D concentration of three-tenths per cent is the approximate minimum that is effective. No noticeable increase in killing or sinking of plants results from applying more than seventy-five gallons per acre with low-pressure equipment or more than 200 gallons per acre with high-pressure equipment.

No evidence was found that any of the 2,4-D sprays were toxic to fish or other animals living in the treated waterways. Cattle and wildlife grazing on the treated foliage were likewise unaffected. No residual effect of 2,4-D in the water of the treated area has been observed.

The water hyacinth is most easily killed during its slow-growing period, from August through March; so it is best to apply sprays sometime during these months. Plants not killed by a treatment during this period will not constitute the serious hazard they would if they escaped treatment in May or June, and sprays applied during this time are less likely to injure crops and ornamental or timber plants than those applied during the principal growing season. Regardless of the time of year, spraying should be avoided on windy days, of course.

The experimenters concluded that the helicopter is perhaps the most effective and efficient means of applying sprays to the hyacinth-clogged waterways, for sprays applied from above the treetops reached the foliage of hyacinths underneath. Complete killing from bank to bank on canals lined with trees fifty to seventy feet high was accomplished. There was some leaf and small branch kill on some trees such as willow, but a final evaluation of tree injury has not yet been recorded. One of the most important trees in the Gulf coast area, the bald cypress, was relatively resistant to 2,4-D. Though the foliage was killed, new leaves, normal in every respect, were put out within two months after treatment with 2,4-D.

A Bell 47-D type helicopter equipped with the standard Bell-type spray boom can treat approximately 500 acres per day. The width that can be effectively covered varies from forty to about 130 feet, accord-



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Francis A. Robinson, president, is a partner of Robinson & Parnham, member of American Association of Nurserymen; in active professional landscape practice for 39 years.

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More than 380,000,000 seedlings were produced in 1949 by federal, state and private nurseries in the United States, according to a survey made by J. C. McClellan, chief forester for the American Forest Products Industries, Inc., Washington, D. C.

"Assuming a two-thirds survival rate, last year's seedling crop of 380,000,000 trees will in a half century supply the country's wood needs for a year," Mr. McClellan said.

Louisiana was top producer with 53,500,000 trees. The next three states in order were: South Carolina, 32,000,000; Georgia, 27,000,000, and Florida, 25,000,000. Alabama, Tennessee, Wisconsin and Michigan produced 21,000,000 small trees each.

Production in 1950 is estimated to exceed 500,000,000 seedlings, or enough trees to reforest a half-million acres.

H. W. D.

FOLEY WITH HORTICULTURE

Daniel J. Foley has been appointed editor of Horticulture, published by the Massachusetts Horticultural Society, to replace William H. Clark, who has resigned. Mr. Foley is the author of four books which have enjoyed a wide distribution in this country, "Annuals for Your Garden," "Garden Bulbs and Color," of which he was coauthor, "Vegetable Garden in Color" and "Garden Flowers in Color."

A native of Salem, Mass., Mr. Foley is a graduate of the Massachusetts State College, where he received his degree of bachelor of science in landscape architecture and continued his studies in the graduate school in the field of horticulture.

For the past five years Mr. Foley has been director of the Salem chamber of commerce.

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15 to 18 ins.	\$25.00	\$200.00
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24 to 30 ins.	35.00	300.00

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Green Barberry.

2-yr. trans.		
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18 to 24 ins.	25.00	200.00
24 to 30 ins.	30.00	250.00

BERBERIS THUNBERGI.

Green Barberry.

2-yr. untr.		
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	Each per 10	Each per 100
2 to 3 ft., B&B, heavy	\$ 3.10	\$ 3.00
3 to 4 ft., B&B, heavy	4.10	4.00
4 to 5 ft., B&B, heavy	6.10	6.00
5 to 6 ft., B&B, heavy	10.10	10.00

JUNIPERUS CHINENSIS PFITZERIANA.

Pfitzer Juniper.

15 to 18 ins., B&B	2.60	2.50
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JUNIPERUS EXCELSA STRICTA.

Green Juniper.

18 to 24 ins., B&B	2.60	2.50
24 to 30 ins., B&B	3.10	3.00

COLORADO BLUE SPRUCE.

30 to 36 ins., blue	4.10	4.00
30 to 36 ins., green	3.10	3.00
4 to 5 ft., blue	8.10	8.00
5 to 6 ft., blue	10.10	10.00

THUJA OCCIDENTALIS PYRAMIDALIS.

Pyramidal Arborvitae.

2 to 3 ft., B&B	2.60	2.50
3 to 4 ft., B&B	3.10	3.00
4 to 5 ft., B&B	4.10	4.00
5 to 6 ft., B&B	5.10	5.00

THUJA OCCIDENTALIS.

American Arborvitae.

3 to 4 ft., B&B	3.10	3.00
4 to 5 ft., B&B	4.10	4.00

THUJA OCCIDENTALIS GLOBOSA.

Globe Arborvitae.

	Each per 10	Each per 100
18 to 24 ins., B&B	\$ 2.10	\$2.00
24 to 30 ins., B&B	2.60	2.50

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Upright Yew.

24 to 30 ins., B&B	4.10	4.00
30 to 36 ins., B&B	5.10	5.00
36 to 42 ins., B&B	6.10	6.00
42 to 48 ins., B&B	10.00	
48 to 54 ins., B&B	15.00	

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Spreading Yew.

18 to 24 ins., B&B	3.10	3.00
24 to 30 ins., B&B	4.10	4.00
30 to 36 ins., B&B	5.10	5.00

TAXUS HICKSI.

Hicks' Yew.

24 to 30 ins.	4.10	4.00
30 to 36 ins.	5.10	5.00
36 to 42 ins.	6.10	6.00

TAXUS HATFIELDI.

Hatfield Yew.

24 to 30 ins.	4.10	4.00
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TAXUS INTERMEDIA.

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Spreading Yew.

15 to 18 ins., B&B	4.10	4.00
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RETINOSPORA PLUMOSA.

Plumosa.

24 to 30 ins., B&B	2.10	2.00
30 to 36 ins., B&B	2.60	2.50
36 to 42 ins., B&B	3.10	3.00

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18 to 24 ins.	3.10	3.00
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Andorra Juniper, 12 to 15 ins., xx, Field80	.70
Hillbush Juniper, 10 to 12 ins., xx, Field	1.00	.90
Canaert Juniper, 15 to 18 ins., xx, Field	1.10	1.00
Canaert Juniper, 18 to 24 ins., xx, Field	1.20	1.10
Hillspire Juniper, 15 to 18 ins., xx, Field	1.10	1.00
Hillspire Juniper, 18 to 24 ins., xx, Field	1.20	1.10
Dundee Juniper, 15 to 18 ins., xx, Field	1.10	1.00
Dundee Juniper, 18 to 24 ins., xx, Field	1.20	1.10
Dark Green Arborvitae, 12 to 18 ins., xx, Field . . . . .	.70	.60
Pyramidal Arborvitae, 15 to 18 ins., xx, Field60	.50
Pyramidal Arborvitae, 18 to 24 ins., xx, Field70	.60

25 at the 100 rate

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